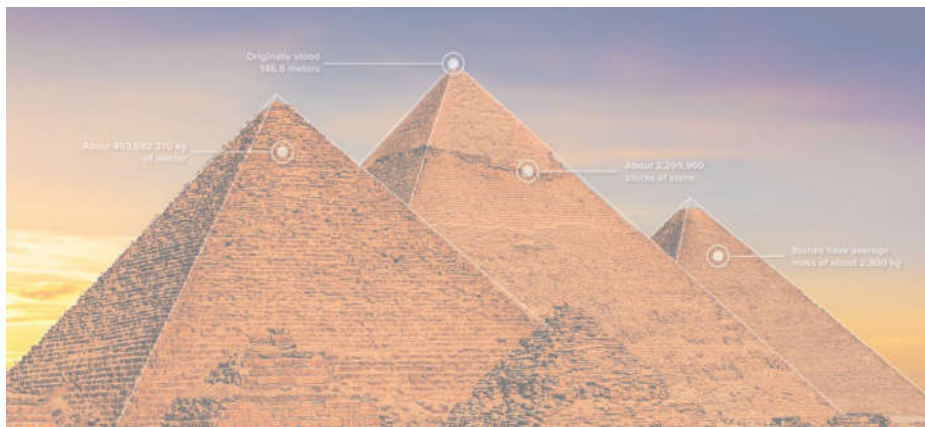


MATHEMATICS PRIMARY FOUR SECOND TERM





UNIT

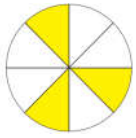
9

Theme 3 | Fractions, Decimals, and Proportional Relationships

Unit 9 Fractions



Concept (1): Composing and Decomposing Fractions



3 **Numerator (number of shaded parts)**

8 **Denominator (number of all parts)**



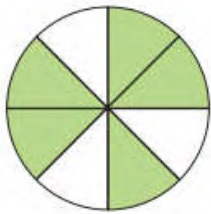
The figure	No. of equal parts	No. of shaded parts	Fraction form	Word form
	2	1	$\frac{1}{2}$	One Half
	3	1	$\frac{1}{3}$	One Third
	4	1	$\frac{1}{4}$	One Fourth
	5	1	$\frac{1}{5}$	One Fifth
	6	1	$\frac{1}{6}$	One Sixth
	7	1	$\frac{1}{7}$	One Seventh
	8	1	$\frac{1}{8}$	One eighth



Complete the following table:

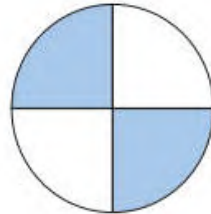
	Numerator	Denominator	The Fraction	Word form
①	1	2	$\frac{\dots}{\dots}$
②	2	$\frac{\dots}{7}$
③	3	$\frac{2}{\dots}$
④	$\frac{5}{8}$
⑤	$\frac{\dots}{\dots}$	Seven ninths

Write the fraction that represents the shaded part:



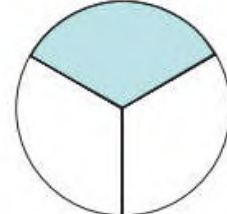
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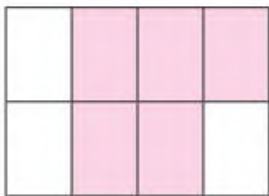
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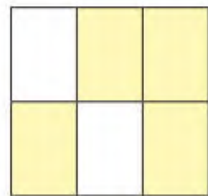
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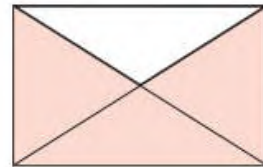
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Complete:

$$\frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{\quad}{\quad}$$

$$\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = \frac{\quad}{\quad}$$

$$\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \frac{\quad}{\quad}$$

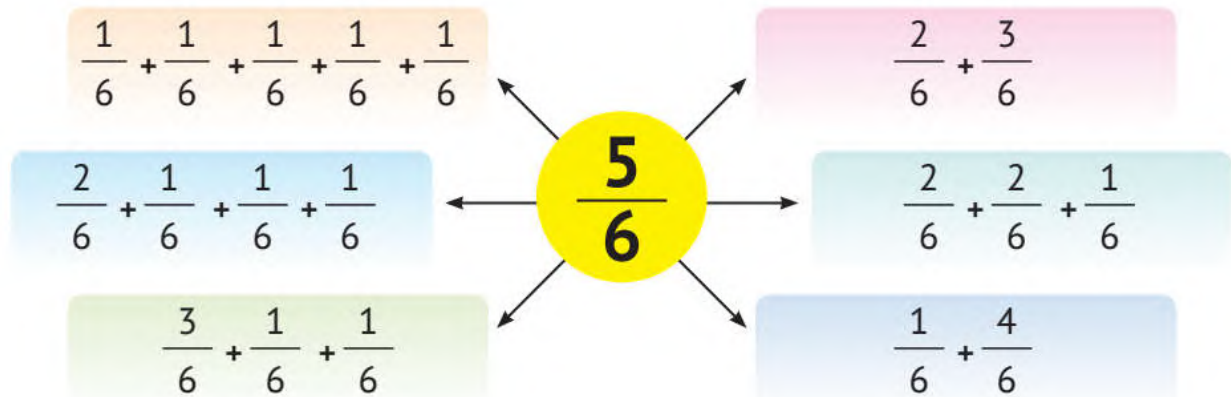
$$\frac{1}{4} + \frac{1}{4} = \frac{\quad}{\quad}$$



Decomposing Fractions

$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$
$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$

$$\frac{5}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$$



Decompose the following fractions:

$$\frac{4}{5} = \dots + \dots + \dots + \dots$$

$$\frac{3}{8} = \dots$$

$$\frac{2}{6} = \dots$$



Decompose the following fractions in two different ways:

$$1 \quad \frac{3}{4} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$$

$$2 \quad \frac{3}{4} = \frac{\dots}{\dots} + \frac{\dots}{\dots}$$

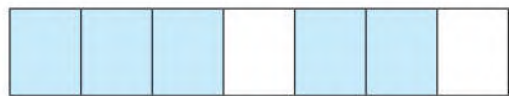
$$1 \quad \frac{4}{5} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$$

$$2 \quad \frac{4}{5} = \frac{\dots}{\dots} + \frac{\dots}{\dots}$$



Match:

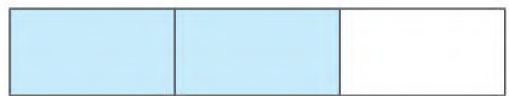
$$\frac{1}{3} + \frac{1}{3}$$



$$\frac{3}{7} + \frac{2}{7}$$



$$\frac{1}{4} + \frac{2}{4}$$



Proper fraction:

Is just a fraction where its numerator is **less than** its denominator, such as: $\frac{1}{5}$, $\frac{2}{3}$, $\frac{5}{7}$, $\frac{10}{21}$, ... etc.

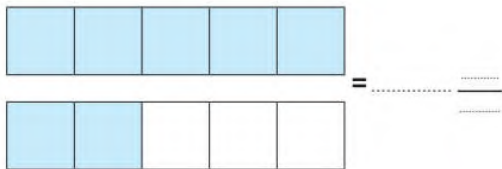
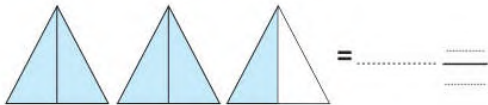
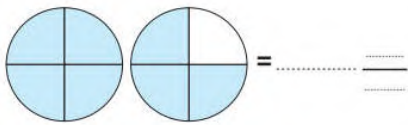
Improper fraction:

Is just a fraction where its numerator is **more than** or **equal to** its denominator, such as: $\frac{7}{5}$, $\frac{5}{3}$, $\frac{7}{7}$, $\frac{11}{2}$, ... etc.

Mixed number:

Is a number consisting of a whole number and a proper fraction, such as: $3\frac{1}{5}$, $4\frac{2}{3}$, $2\frac{5}{7}$, $6\frac{11}{12}$, ... etc.

Write the mixed number that represents the figure:



Match:

$\frac{5}{5}$ •

• **proper fraction** •

• $\frac{9}{7}$

$3\frac{5}{8}$ •

• **improper fraction** •

• $\frac{3}{13}$

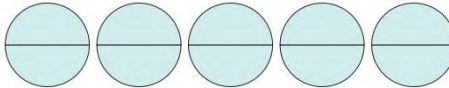
$\frac{5}{7}$ •

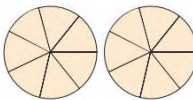
• **mixed number** •

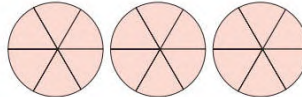
• $2\frac{5}{7}$



The fractional form of the whole number:

$$\frac{10}{2} = 5 \rightarrow 10 \div 2 = 5$$


$$\frac{14}{7} = 2 \rightarrow 14 \div 7 = 2$$


$$\frac{18}{6} = 3 \rightarrow 18 \div 6 = 3$$


Complete:

$$1 \quad 2 = \frac{\dots}{5} = \frac{4}{\dots} = \dots$$

$$4 \quad 4 = \frac{\dots}{2} = \frac{20}{\dots} = \dots$$

$$7 \quad 8 = \frac{\dots}{2} = \frac{40}{\dots} = \dots$$

$$2 \quad 1 = \frac{\dots}{5} = \frac{4}{\dots} = \dots$$

$$5 \quad 5 = \frac{\dots}{5} = \frac{15}{\dots} = \dots$$

$$8 \quad 9 = \frac{\dots}{3} = \frac{36}{\dots} = \dots$$

$$3 \quad 3 = \frac{\dots}{5} = \frac{12}{\dots} = \dots$$

$$6 \quad 6 = \frac{\dots}{3} = \frac{24}{\dots} = \dots$$

$$9 \quad 7 = \frac{\dots}{5} = \frac{21}{\dots} = \dots$$



Write each of the following as an improper fraction:

$$1 \quad 3\frac{1}{2} = \dots$$

$$4 \quad 5\frac{1}{2} = \dots$$

$$7 \quad 5\frac{1}{4} = \dots$$

$$2 \quad 3\frac{2}{3} = \dots$$

$$5 \quad 2\frac{3}{5} = \dots$$

$$8 \quad 6\frac{2}{3} = \dots$$

$$3 \quad 2\frac{3}{4} = \dots$$

$$6 \quad 8\frac{1}{2} = \dots$$

$$9 \quad 4\frac{3}{10} = \dots$$



Write each of the following as a mixed number:

$$1 \quad \frac{5}{2} = \dots$$

$$4 \quad \frac{9}{2} = \dots$$

$$7 \quad \frac{15}{4} = \dots$$

$$2 \quad \frac{7}{3} = \dots$$

$$5 \quad \frac{13}{5} = \dots$$

$$8 \quad \frac{22}{3} = \dots$$

$$3 \quad \frac{9}{4} = \dots$$

$$6 \quad \frac{17}{2} = \dots$$

$$9 \quad \frac{31}{10} = \dots$$



Homework



MULTIPLICATION

$4 \times 7 = \square$

$4 \times 3 = \square$

$4 \times 4 = \square$

$4 \times 8 = \square$

$4 \times 2 = \square$

$4 \times 1 = \square$

$4 \times 5 = \square$

$4 \times 6 = \square$

$4 \times 0 = \square$

$5 \times 3 = \square$

$5 \times 5 = \square$

$5 \times 4 = \square$

$5 \times 6 = \square$

$5 \times 0 = \square$

$5 \times 7 = \square$

$5 \times 2 = \square$

$5 \times 1 = \square$

$5 \times 9 = \square$

$4 \times 2 = \square$

$5 \times 6 = \square$

$5 \times 7 = \square$

$4 \times 5 = \square$

$4 \times 3 = \square$

$4 \times 8 = \square$

$5 \times 2 = \square$

$5 \times 1 = \square$

$5 \times 9 = \square$

$4 \times 8 = \square$

$5 \times 5 = \square$

$4 \times 7 = \square$

$4 \times 4 = \square$

$4 \times 9 = \square$

$4 \times 6 = \square$

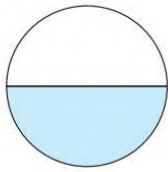
$5 \times 3 = \square$

$4 \times 1 = \square$

$5 \times 4 = \square$

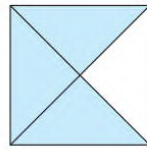


Write the fraction that represents the shaded part:



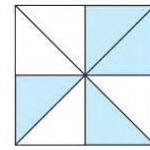
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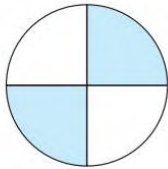
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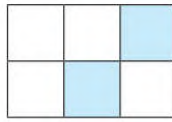
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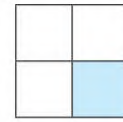
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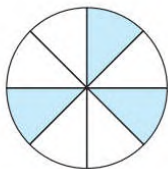
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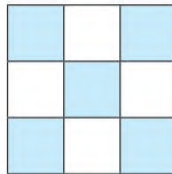
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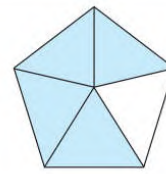
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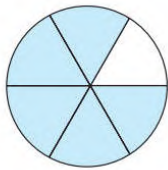
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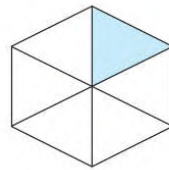
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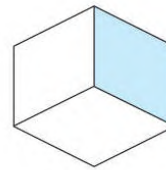
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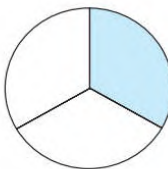
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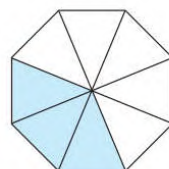
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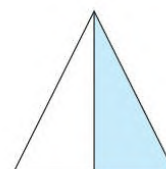
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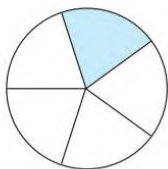
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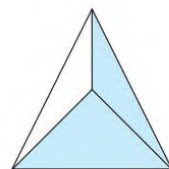
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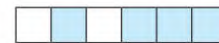
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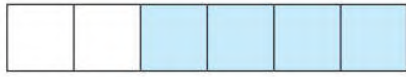
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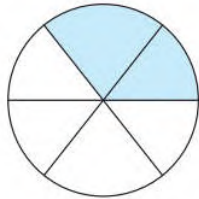
Write the fraction, then decompose it:



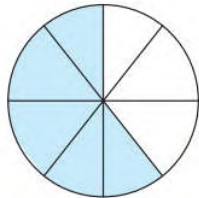
$$\frac{\dots}{\dots} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$$



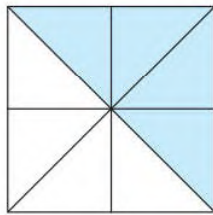
$$\frac{\dots}{\dots} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$$



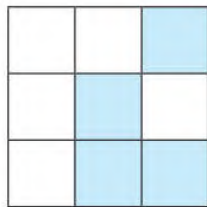
$$\frac{\dots}{\dots} = \frac{\dots}{\dots} + \frac{\dots}{\dots}$$



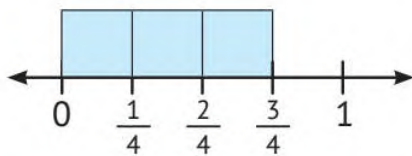
$$\frac{\dots}{\dots} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$$



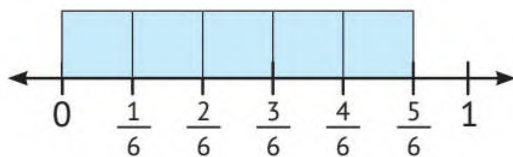
$$\frac{\dots}{\dots} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$$



$$\frac{\dots}{\dots} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$$



$$\frac{\dots}{\dots} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$$



$$\frac{\dots}{\dots} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$$



Decompose the following fractions:

$$\frac{2}{3} = \dots\dots\dots$$

$$\frac{3}{4} = \dots\dots\dots$$

$$\frac{2}{4} = \dots\dots\dots$$

$$\frac{4}{5} = \dots\dots\dots$$

$$\frac{3}{5} = \dots\dots\dots$$

$$\frac{5}{6} = \dots\dots\dots$$

$$\frac{4}{7} = \dots\dots\dots$$

$$1 = \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots}$$

$$1 = \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots}$$

$$1 = \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots}$$

$$1 = \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots} + \frac{\dots\dots\dots}{\dots\dots\dots}$$



Decompose the following fractions in two different ways:

1 $\frac{5}{7} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$

2 $\frac{5}{7} = \frac{\dots}{\dots} + \frac{\dots}{\dots}$

1 $\frac{5}{8} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$

2 $\frac{5}{8} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$

1 $\frac{6}{9} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$

2 $\frac{6}{9} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$

1 $\frac{6}{8} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$

2 $\frac{6}{8} = \frac{\dots}{\dots} + \frac{\dots}{\dots}$

1 $\frac{7}{8} = \frac{\dots}{\dots} + \frac{\dots}{\dots}$

2 $\frac{7}{8} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$

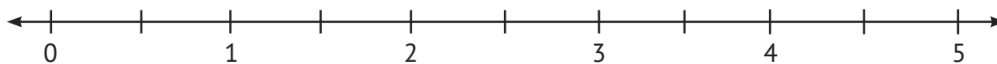
1 $\frac{8}{9} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots}$

2 $\frac{8}{9} = \frac{\dots}{\dots} + \frac{\dots}{\dots}$

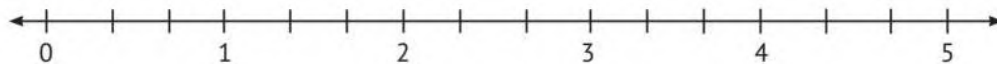


Put each fraction in its suitable place on the number line:

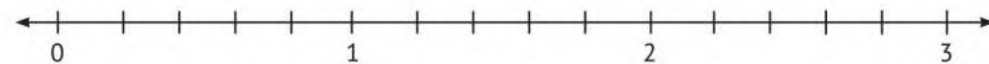
a) $4\frac{1}{2}$, $1\frac{1}{2}$, $\frac{8}{2}$, $3\frac{1}{2}$, $2\frac{1}{2}$



b) $4\frac{1}{3}$, $1\frac{2}{3}$, $2\frac{2}{3}$, $3\frac{1}{3}$, $\frac{2}{3}$



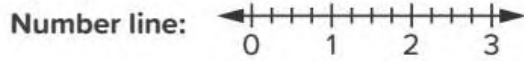
c) $\frac{15}{5}$, $1\frac{3}{5}$, $2\frac{4}{5}$, $1\frac{1}{5}$, $\frac{3}{5}$



Adding & Subtracting Mixed Numbers

Mixed Together Add the mixed numbers. Solve each problem using a number line, a model, and an equation. For each model, color the first fraction one color and use a different color for the second fraction.

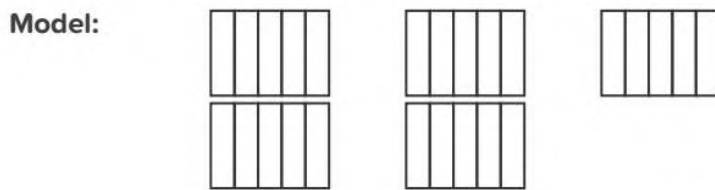
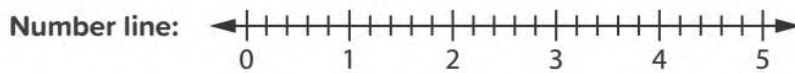
1. $1\frac{1}{4} + \frac{3}{4}$



Equation: _____



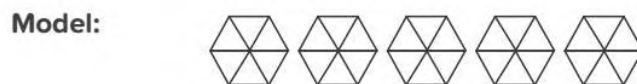
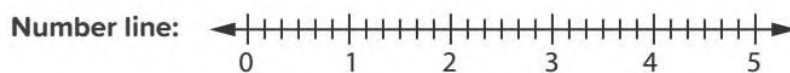
2. $2\frac{1}{5} + 1\frac{2}{5}$



Equation: _____



3. $2\frac{1}{6} + 1\frac{5}{6}$

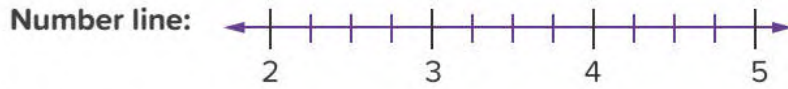


Equation: _____



Mixed Apart Subtract the mixed numbers. For each problem, solve it using a number line, a model, and an equation. For each model, color in the minuend one color and use a pencil to cross off the subtrahend.

1. $4\frac{3}{4} - 2\frac{1}{4}$



Equation: _____



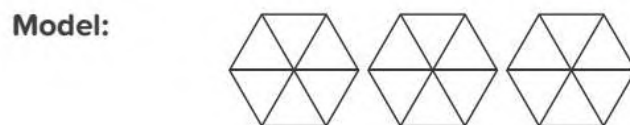
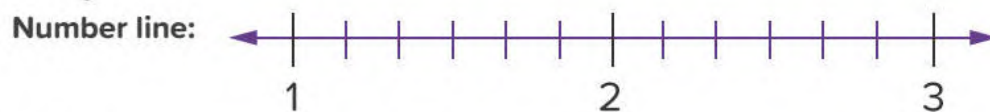
2. $5 - 2\frac{1}{4}$



Equation: _____



3. $3 - 1\frac{1}{6}$



Equation: _____



Add:

a) $1\frac{1}{5} + 2\frac{2}{5} =$

b) $4\frac{3}{7} + 5\frac{4}{7} =$

c) $6\frac{3}{8} + 2\frac{5}{8} =$

d) $6\frac{3}{4} + 8\frac{3}{4} =$

e) $3\frac{5}{8} + 2\frac{7}{8} =$

**Subtract:**

a) $5 - 2\frac{1}{7} =$

b) $4\frac{3}{8} - 3\frac{1}{8} =$

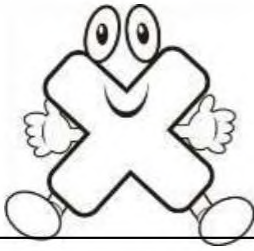
c) $6\frac{3}{7} - 1\frac{2}{7} =$

d) $9\frac{3}{5} - 2\frac{4}{5} =$

e) $8\frac{2}{9} - 3\frac{5}{9} =$



Homework



MULTIPLICATION

$5 \times 7 = \square$

$5 \times 3 = \square$

$5 \times 4 = \square$

$5 \times 8 = \square$

$5 \times 2 = \square$

$5 \times 1 = \square$

$5 \times 5 = \square$

$5 \times 6 = \square$

$5 \times 0 = \square$

$6 \times 3 = \square$

$6 \times 5 = \square$

$6 \times 4 = \square$

$6 \times 6 = \square$

$6 \times 0 = \square$

$6 \times 7 = \square$

$6 \times 2 = \square$

$6 \times 1 = \square$

$6 \times 9 = \square$

$5 \times 2 = \square$

$6 \times 6 = \square$

$6 \times 7 = \square$

$5 \times 5 = \square$

$5 \times 3 = \square$

$6 \times 8 = \square$

$5 \times 2 = \square$

$5 \times 1 = \square$

$6 \times 9 = \square$

$6 \times 8 = \square$

$5 \times 5 = \square$

$5 \times 7 = \square$

$6 \times 4 = \square$

$6 \times 9 = \square$

$5 \times 6 = \square$

$5 \times 3 = \square$

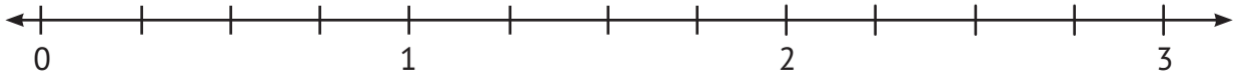
$6 \times 1 = \square$

$6 \times 4 = \square$



Put each fraction in its suitable place on the number line:

$$\frac{3}{4}, 2\frac{1}{4}, 1\frac{2}{4}, \frac{1}{4}, 2\frac{3}{4}$$

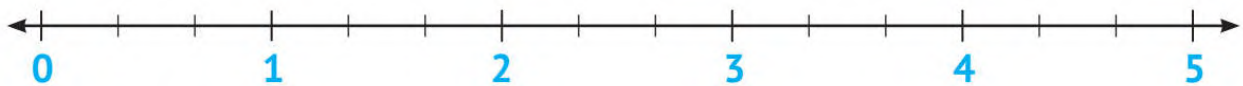


$$\frac{3}{4}, 1\frac{3}{4}, 2\frac{1}{4}, 3\frac{2}{4}$$



Add using the number line:

a) $2\frac{1}{3} + 1\frac{1}{3} = \dots\dots\dots$



b) $3\frac{3}{4} + \frac{3}{4} = \dots\dots\dots$



c) $1\frac{2}{5} + 1\frac{4}{5} = \dots\dots\dots$



Add:

$$2 \frac{3}{4} + 5 = \dots\dots\dots$$

$$4 \frac{3}{5} + 2 \frac{1}{5} = \dots\dots\dots$$

$$2 \frac{3}{8} + 1 \frac{4}{8} = \dots\dots\dots$$

$$4 \frac{4}{5} + 3 \frac{1}{5} = \dots\dots\dots$$

$$2 \frac{6}{7} + \frac{1}{7} = \dots\dots\dots$$

$$3 \frac{5}{8} + 2 \frac{3}{8} = \dots\dots\dots$$

$$3 \frac{5}{6} + \frac{3}{6} = \dots\dots\dots$$

$$4 \frac{3}{7} + 2 \frac{6}{7} = \dots\dots\dots$$

$$3 \frac{5}{6} + 2 \frac{5}{6} = \dots\dots\dots$$

**Subtract:**

$$\text{a) } 5 \frac{6}{7} - 2 \frac{3}{7} = \dots\dots\dots$$

$$\text{e) } 4 \frac{3}{4} - 1 \frac{2}{4} = \dots\dots\dots$$

$$\text{b) } 9 - 1 \frac{3}{7} = \dots\dots\dots$$

$$\text{f) } 8 - 5 \frac{3}{8} = \dots\dots\dots$$

$$\text{c) } 5 \frac{1}{4} - 2 \frac{3}{4} = \dots\dots\dots$$

$$\text{g) } 6 \frac{3}{8} - 1 \frac{5}{8} = \dots\dots\dots$$

$$\text{d) } 9 \frac{1}{5} - 2 = \dots\dots\dots$$

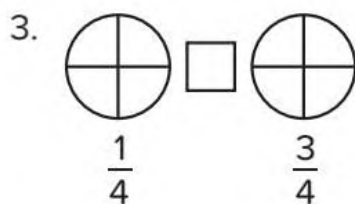
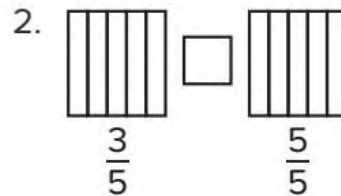
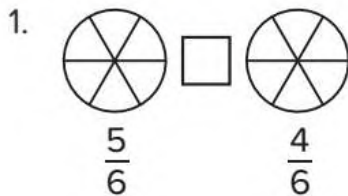
$$\text{h) } 6 \frac{5}{8} - 3 = \dots\dots\dots$$



Concept (2): Comparing Fractions

[1] Comparing fractions with like denominators:

Comparing Fractions with Like Denominators Shade each shape to show the given fractions. Then, compare the fractions using the symbols $<$, $>$, or $=$.



4. Fill in the blanks to complete the statement.

If fractions have the same _____, then the one with the _____ numerator is the _____ fraction.

5. Order the following fractions from least to greatest.

$\frac{6}{8}$ $\frac{2}{8}$ $\frac{5}{8}$ $\frac{3}{8}$ $\frac{7}{8}$ $\frac{1}{8}$ $\frac{8}{8}$

_____ ; _____ ; _____ ; _____ ; _____ ; _____ ; _____

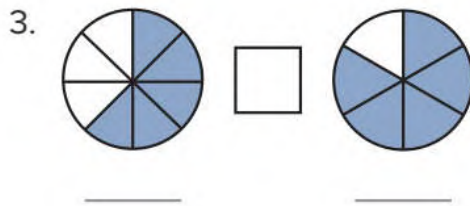
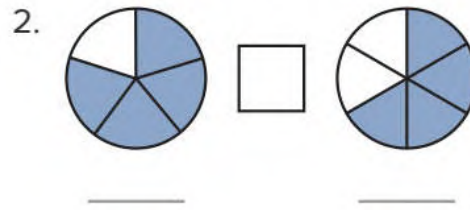
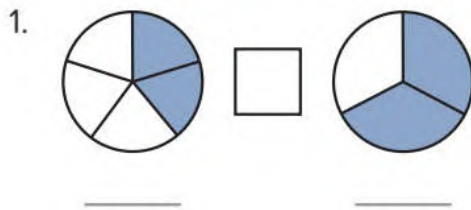


Put the suitable relation ($<$), ($>$) or ($=$) in the blanks:



[2] Comparing fractions with like numerators:

Comparing Fractions with Like Numerators Write the fractions shown underneath each shape, and then compare each pair of fractions using the symbols $<$, $>$, or $=$.



4. Fill in the blanks to complete the statement.

If fractions have the same _____, then the one with the _____ denominator is the _____ fraction.

Write $<$, $>$, or $=$ in each box to compare the two fractions.

5. $\frac{5}{6}$ $\frac{5}{8}$

6. $\frac{3}{6}$ $\frac{3}{4}$

7. $\frac{4}{8}$ $\frac{4}{5}$

8. Order the following fractions from least to greatest.

$\frac{3}{5}$ $\frac{3}{8}$ $\frac{3}{3}$ $\frac{3}{6}$ $\frac{3}{12}$

_____ ; _____ ; _____ ; _____ ; _____



PRACTICE

Compare the fractions using greater than ($>$) or less than ($<$), and then order them from least to greatest.

1. $\frac{4}{8} \square \frac{1}{8}$ $\frac{7}{8} \square \frac{3}{8}$ $\frac{2}{8} \square \frac{6}{8}$

_____ ; _____ ; _____ ; _____ ; _____ ; _____

2. $\frac{4}{1} \square \frac{4}{5}$ $\frac{4}{8} \square \frac{4}{4}$ $\frac{4}{9} \square \frac{4}{10}$

_____ ; _____ ; _____ ; _____ ; _____ ; _____

3. Hady and Hala were playing soccer. Hady made $\frac{2}{3}$ of his shots. Hala made $\frac{2}{4}$ of his shots. If they took the same number of shots, who made more shots?

Shorouk, Yahia, and Ziad each bought one bar of chocolate. On the way home, Shourouk ate $\frac{2}{15}$ of hers, Yahia ate $\frac{7}{15}$ of his, and Ziad ate $\frac{4}{15}$ of his. The next day, Shourouk had another $\frac{7}{15}$, Yahia ate another $\frac{8}{15}$ and Ziad ate another $\frac{10}{15}$.

4. How much chocolate did each person eat in all?


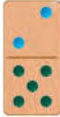


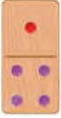
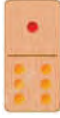
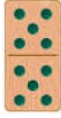
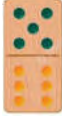




5. How much chocolate do they each have left?

6. Who has the most chocolate left?

7. Who has the least chocolate left?

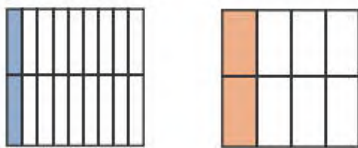
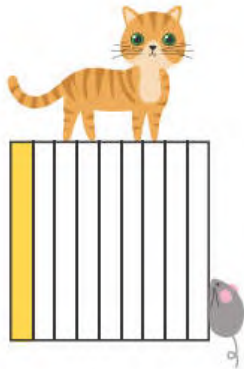


Put the suitable relation (<), (>) or (=) in the blanks:

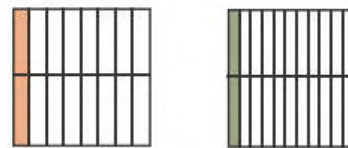
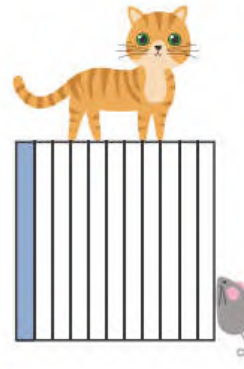
1.		<input type="text"/>		2.		<input type="text"/>	
3.		<input type="text"/>		4.		<input type="text"/>	
5.		<input type="text"/>		6.		<input type="text"/>	



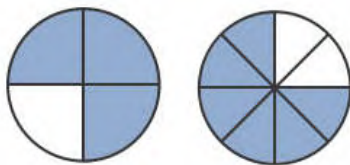
Circle the fraction that is equivalent.



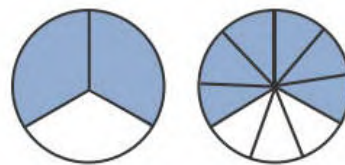
Circle the fraction that is equivalent.



Record the equivalent fraction in the second model.



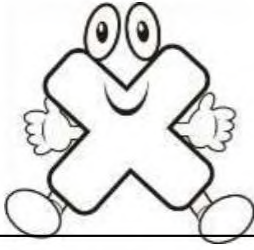
$$\frac{3}{4} = \frac{\quad}{8}$$



$$\frac{2}{3} = \frac{\quad}{9}$$



Homework



MULTIPLICATION

$7 \times 3 = \square$

$7 \times 5 = \square$

$7 \times 4 = \square$

$7 \times 6 = \square$

$7 \times 0 = \square$

$7 \times 7 = \square$

$7 \times 2 = \square$

$7 \times 1 = \square$

$7 \times 9 = \square$

$5 \times 7 = \square$

$5 \times 3 = \square$

$5 \times 4 = \square$

$5 \times 8 = \square$

$5 \times 2 = \square$

$5 \times 1 = \square$

$5 \times 5 = \square$

$5 \times 6 = \square$

$5 \times 0 = \square$

$5 \times 2 = \square$

$7 \times 6 = \square$

$7 \times 7 = \square$

$5 \times 5 = \square$

$5 \times 3 = \square$

$5 \times 8 = \square$

$7 \times 2 = \square$

$7 \times 1 = \square$

$7 \times 9 = \square$

$5 \times 8 = \square$

$7 \times 5 = \square$

$5 \times 7 = \square$

$5 \times 4 = \square$

$5 \times 9 = \square$

$5 \times 6 = \square$

$7 \times 3 = \square$

$5 \times 1 = \square$

$7 \times 4 = \square$



[1] Put the suitable relation (<), (>) or (=) in the blanks:

(1) $\frac{1}{5}$ $\frac{4}{5}$

(5) $\frac{3}{4}$ $\frac{1}{4}$

(2) $\frac{9}{10}$ $\frac{3}{10}$

(6) $\frac{5}{9}$ $\frac{4}{9}$

(3) $2\frac{7}{9}$ $2\frac{5}{9}$

(7) $2\frac{1}{8}$ $\frac{17}{8}$

(4) $3\frac{2}{5}$ $\frac{7}{5}$

(8) $\frac{3}{7}$ $\frac{4}{7}$



[2] Put the suitable relation (<), (>) or (=) in the blanks:

(1) $\frac{3}{4}$ $\frac{3}{5}$

(4) $\frac{1}{7}$ $\frac{1}{3}$

(2) $\frac{2}{8}$ $\frac{2}{4}$

(5) $\frac{8}{25}$ $\frac{8}{13}$

(3) $2\frac{7}{9}$ $2\frac{7}{8}$

(6) $2\frac{1}{2}$ $2\frac{1}{9}$



[3] Arrange each of the following numbers:

(1) $\frac{2}{11}, \frac{7}{11}, \frac{4}{11}, \frac{10}{11}$

Ascending order:

(2) $\frac{13}{7}, \frac{5}{7}, \frac{9}{7}, \frac{4}{7}, \frac{11}{7}$

Descending order:

(3) $\frac{2}{10}, \frac{9}{10}, \frac{14}{10}, 0.5, \frac{7}{10}$

Ascending order:



(4) $\frac{5}{9}, 1, \frac{2}{9}, \frac{7}{9}$

Descending order:

**[4] Arrange each of the following numbers:**

(1) $\frac{7}{13}, \frac{7}{5}, \frac{7}{9}, \frac{7}{4}, \frac{7}{11}$

Ascending order:

(2) $\frac{12}{5}, \frac{12}{7}, \frac{12}{17}, \frac{12}{13}, \frac{12}{15}$

Descending order:

(3) $\frac{2}{5}, \frac{2}{3}, 1, \frac{2}{10}, \frac{2}{8}$

Descending order:



Go DEEPER Angie, Blake, Carlos, and Daisy went running. Angie ran $\frac{1}{3}$ mile, Blake ran $\frac{3}{5}$ mile, Carlos ran $\frac{7}{10}$ mile, and Daisy ran $\frac{1}{2}$ mile. Which runner ran the shortest distance? Who ran the longest distance?

THINK SMARTER Elaine bought $\frac{5}{8}$ pound of potato salad and $\frac{4}{6}$ pound of macaroni salad for a picnic. Use the numbers to compare the amounts of potato salad and macaroni salad Elaine bought.

$$\begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array} < \begin{array}{|c|} \hline \square \\ \hline \square \\ \hline \end{array}$$

4

5

6



8





[5] Put the suitable relation (<), (>) or (=) in the blanks:

1.  



2.  

3.  


4.  

5.  

6.  

7.  

8.  

9.  

10.  



Tell whether the fractions are equivalent. Write = or ≠.

3. $\frac{1}{6} \bigcirc \frac{2}{12}$

4. $\frac{2}{5} \bigcirc \frac{6}{10}$

5. $\frac{4}{12} \bigcirc \frac{1}{3}$

6. $\frac{5}{8} \bigcirc \frac{2}{4}$

7. $\frac{5}{6} \bigcirc \frac{10}{12}$

8. $\frac{1}{2} \bigcirc \frac{5}{10}$



THINK SMARTER

For numbers 12a–12d, tell whether the fractions are equivalent by selecting the correct symbol.

12a. $\frac{3}{15} \begin{cases} = \\ \neq \end{cases} \frac{1}{6}$

12b. $\frac{3}{4} \begin{cases} = \\ \neq \end{cases} \frac{16}{20}$

12c. $\frac{2}{3} \begin{cases} = \\ \neq \end{cases} \frac{8}{12}$

12d. $\frac{8}{10} \begin{cases} = \\ \neq \end{cases} \frac{4}{5}$



Concept (3)

Multiplication and Fractions

Identity Property Review Solve each problem. Then, circle the problems that show the Identity Property of Multiplication.

1. $45 \times 1 =$ _____

2. $1 \times 34,953 =$ _____

3. $\frac{2}{3} \times 1 =$ _____

4. $0 \times 4 =$ _____

5. $1 \times \frac{4}{5} =$ _____

6. $\frac{1}{1} \times \frac{1}{8} =$ _____

7. $\frac{3}{7} \times \frac{4}{4} =$ _____

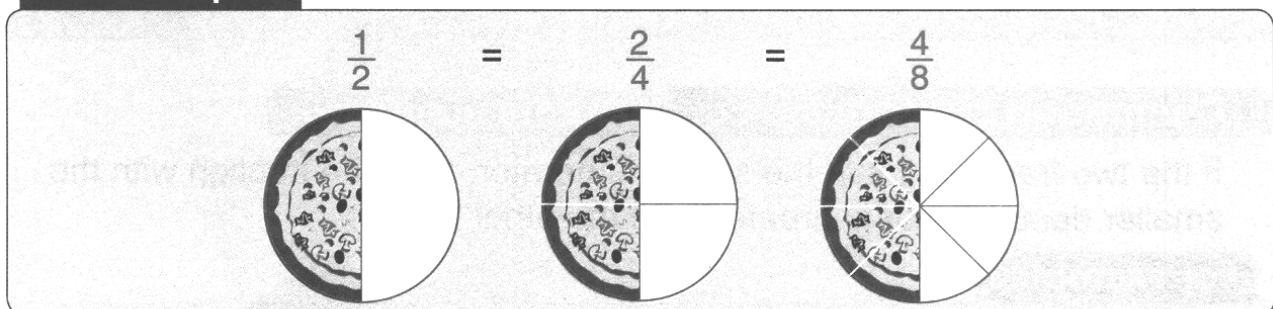
8. $\frac{5}{6} \times 0 =$ _____



Equivalent fractions

- Some fractions may look different, but are really the same.

For example :



- To find equivalent fractions , multiply or divide both of the numerator and the denominator by the same number (other than zero).



For example :

Important :

You only multiply or divide, never add or subtract, to get an equivalent fraction.



Simplifying the fractions

To reduce (simplify) a fraction to its simplest form, we divide each of the numerator and the denominator by the greatest possible common number.

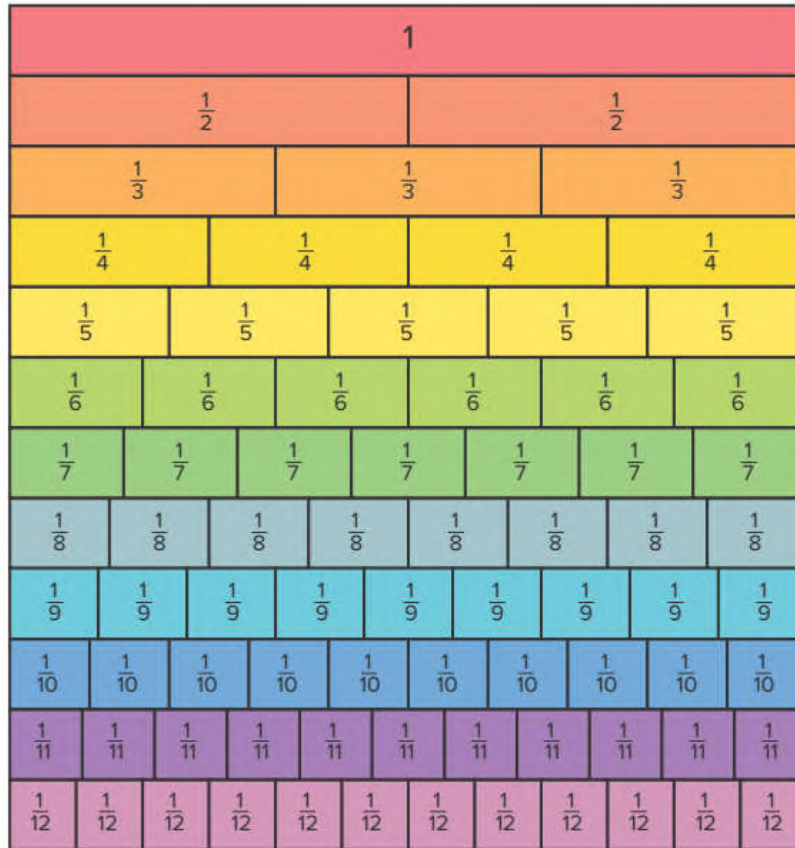
For example :



Example: Write two fractions equivalent to $\frac{4}{6}$.



From Parts to a Whole Use the fraction wall to answer the questions.



- How many halves are in 1 whole? Using halves, how would you write 1 whole as a fraction?
- How many fourths are in 1 whole? Using fourths, how would you write 1 whole as a fraction?
- How many tenths are in 1 whole? Using tenths, how would you write 1 whole as a fraction?



Multiplying to Create Equivalent Fractions Follow your teacher's directions to solve the problems.

- How many ways can you show 1 (one whole) as a fraction? Write as many as you can in the time allowed.

Generate at least 5 equivalent fractions for each fraction.

2. $\frac{2}{3}$; _____; _____; _____; _____; _____

3. _____; $\frac{2}{4}$; _____; _____; _____; _____

4. $\frac{3}{5}$; _____; _____; _____; _____; _____

5. _____; _____; $\frac{3}{9}$; _____; _____; _____

Dividing to Create Equivalent Fractions Follow your teacher's directions to solve the problems.

- $\frac{15}{20}$ is equivalent to $\frac{3}{4}$. How can you use division to prove it?

Determine whether each fraction pair is equivalent. If it is, write "true." If it is not, write "false."

2. $\frac{2}{3} = \frac{6}{9}$ _____

3. $\frac{7}{8} = \frac{2}{3}$ _____

4. $\frac{3}{5} = \frac{6}{8}$ _____

5. $\frac{6}{10} = \frac{2}{5}$ _____

6. $\frac{2}{8} = \frac{1}{4}$ _____

7. $\frac{9}{12} = \frac{2}{4}$ _____

8. $\frac{3}{8} = \frac{1}{6}$ _____

9. $\frac{1}{3} = \frac{4}{12}$ _____



What Is the Missing Multiple? Work with a partner to identify the missing numerator or denominator for the equivalent fractions.

$$1. \frac{3}{4} = \frac{\square}{12}$$

$$2. \frac{5}{15} = \frac{15}{\square}$$

$$3. \frac{20}{25} = \frac{\square}{5}$$

Find the missing numerator or denominator to make the fractions equivalent. Record what factor you multiplied or divided by. An example is shown.

$$\frac{2}{5} = \frac{\quad}{20}$$

Diagram showing multiplication factors: $5 \times 4 = 20$ and $2 \times 4 = 8$.

$$4. \frac{5}{7} = \frac{\square}{21}$$

Diagram showing multiplication factors: $7 \times 3 = 21$ and $5 \times 3 = 15$.

$$5. \frac{2}{9} = \frac{10}{\square}$$

Diagram showing multiplication factors: $9 \times 5 = 45$ and $2 \times 5 = 10$.



6. $\frac{12}{18} = \frac{4}{\square}$

7. $\frac{10}{70} = \frac{\square}{7}$

8. $\frac{7}{13} = \frac{21}{\square}$

9. Heba had two cakes that were the same size. She cut the first cake into 6 pieces and frosted 2 of the pieces blue. She cut the second cake into 18 pieces. If she wanted to frost the same fraction of the second cake blue, how many pieces should she frost? How do you know? Draw a fraction model if necessary.



Different Kinds of Cookies

10. Nabil had 9 cookies. $\frac{2}{3}$ of them were chocolate chip. How many cookies were chocolate chip? (Hint: $\frac{2}{3} = \frac{?}{9}$)



ACCESS

Doggy, Doggy, Where Is Your Bone?

Discuss the story problem that follows with your Shoulder Partner. Work together and use a bar model to solve the problem. Then, write an addition and a multiplication sentence.

Omar has 6 dogs. Each dog chews 2 bones a day. How many bones does Omar need each day to give his dogs?



Pack of Dogs

Bar Model:

--	--	--	--	--	--

Addition sentence: _____

Multiplication sentence: _____



- Two of Omar's dogs are at the vet. He has 6 bones in his bag for his evening dog walk. Shade the boxes to show how many bones Omar will give to the dogs that are with him.

--	--	--	--	--	--

- Represent your shaded bar model as a fraction.
- Decompose $\frac{4}{6}$ as the sum of unit fractions.
- Express $\frac{4}{6}$ using multiplication.



5. Draw a bar model and write an addition and multiplication sentence for $\frac{2}{5}$.

Bar model:

--	--	--	--	--

Addition sentence: _____

Multiplication sentence: _____



6. Draw a bar model and write an addition and multiplication sentence for $\frac{5}{8}$.

Bar model:

--	--	--	--	--	--	--	--

Addition sentence: _____

Multiplication sentence: _____



Adding and Subtracting Fractions Solve the problems. Show your work.

1. $\frac{1}{5} + \frac{2}{5} + \frac{1}{5} =$ _____

2. $\frac{3}{8} + \frac{1}{8} + \frac{3}{8} =$ _____

3. $\frac{5}{12} + \frac{2}{12} + \frac{6}{12} =$ _____

4. $\frac{6}{9} - \frac{5}{9} =$ _____

5. $\frac{12}{15} - \frac{5}{15} =$ _____

6. $1 - \frac{2}{5} =$ _____



Heba is making pancake batter. The recipe calls for $\frac{5}{8}$ of a jug of milk, and she only has $\frac{2}{8}$ of a jug of milk. How much more milk does Heba need to make the pancake batter?

What do I know? _____



Kareem runs to train for the big race. On Monday he runs $\frac{4}{2}$ kilometer, on Wednesday he runs $\frac{1}{2}$ kilometer, and on Friday he runs $\frac{6}{2}$ kilometer. How many kilometers did Kareem run in all?

What do I know? _____



Samira and her family are celebrating her birthday with cake. They cut the cake into 8 equal slices. If Samira, her mom, her dad, and her brother each have 1 slice of the cake, what fraction of the cake is left?

What do I know? _____



Over the course of a week, Adam drank $1\frac{3}{4}$ liters of juice and Omar drank $1\frac{7}{8}$ liters of juice. Who drank more?

What do I know? _____



Homework



MULTIPLICATION

$6 \times 7 = \square$

$6 \times 3 = \square$

$6 \times 4 = \square$

$6 \times 8 = \square$

$6 \times 2 = \square$

$6 \times 1 = \square$

$6 \times 5 = \square$

$6 \times 6 = \square$

$6 \times 0 = \square$

$7 \times 4 = \square$

$7 \times 3 = \square$

$7 \times 5 = \square$

$7 \times 7 = \square$

$7 \times 6 = \square$

$7 \times 0 = \square$

$7 \times 9 = \square$

$7 \times 2 = \square$

$7 \times 1 = \square$

$6 \times 8 = \square$

$7 \times 5 = \square$

$6 \times 7 = \square$

$6 \times 4 = \square$

$6 \times 9 = \square$

$6 \times 6 = \square$

$7 \times 3 = \square$

$6 \times 1 = \square$

$7 \times 4 = \square$

$6 \times 2 = \square$

$7 \times 6 = \square$

$7 \times 7 = \square$

$6 \times 5 = \square$

$6 \times 3 = \square$

$6 \times 8 = \square$

$7 \times 2 = \square$

$7 \times 1 = \square$

$7 \times 9 = \square$



Complete:

a $\frac{1}{2} = \frac{5}{\dots\dots}$

c $\frac{3}{5} = \frac{9}{\dots\dots}$

e $\frac{16}{18} = \frac{\dots\dots}{9}$

g $\frac{\dots\dots}{13} = \frac{4}{26}$

b $\frac{5}{15} = \frac{\dots\dots}{3}$

d $\frac{8}{9} = \frac{48}{\dots\dots}$

f $\frac{5}{7} = \frac{30}{\dots\dots}$

h $\frac{\dots\dots}{9} = \frac{32}{72}$

**Simplify as the example:****Example :**

$$\bullet \frac{3}{6} = \frac{1}{2}$$

Diagram showing the simplification of $\frac{3}{6}$ to $\frac{1}{2}$. A circle with arrows indicates dividing both numerator and denominator by 3.

$$\bullet \frac{4}{20} = \frac{1}{5}$$

Diagram showing the simplification of $\frac{4}{20}$ to $\frac{1}{5}$. A circle with arrows indicates dividing both numerator and denominator by 4.

a $\frac{5}{10} = \frac{\dots\dots}{\dots\dots}$

b $\frac{2}{6} = \frac{\dots\dots}{\dots\dots}$

c $\frac{6}{12} = \frac{\dots\dots}{\dots\dots}$

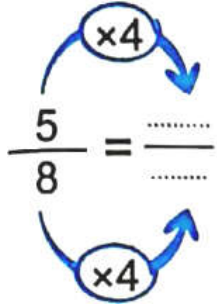
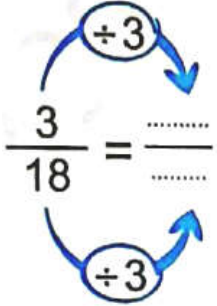
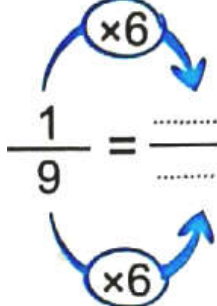
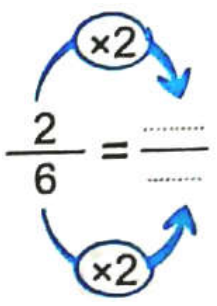
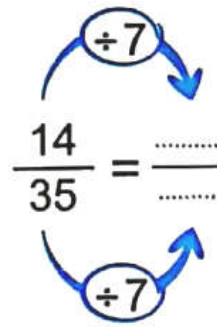
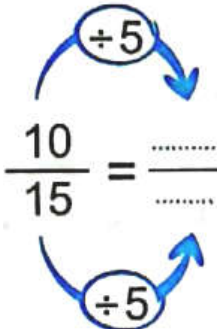
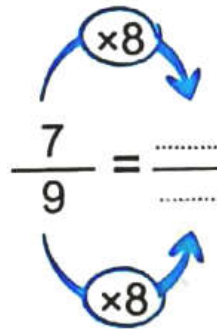
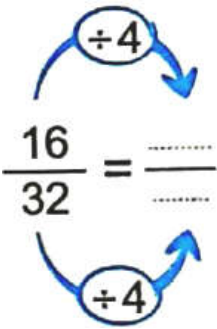
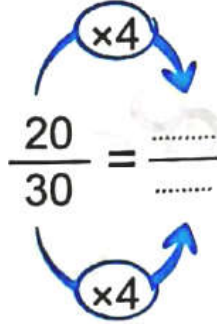
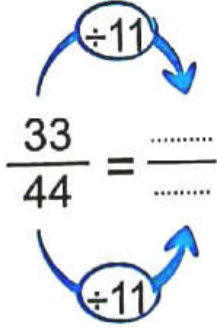
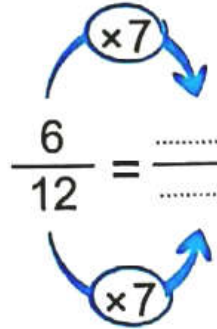
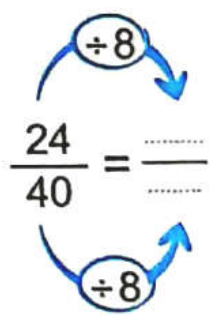
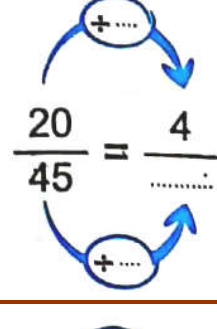
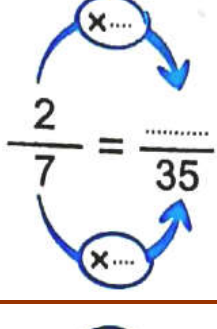
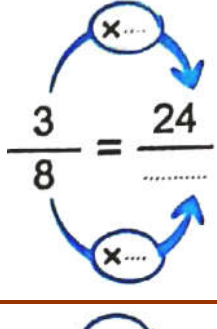
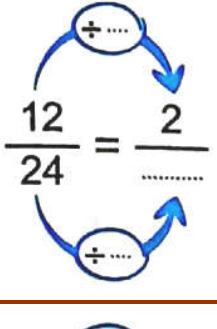
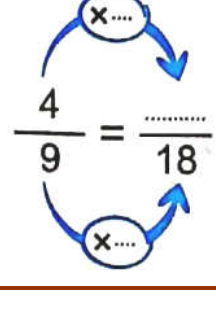
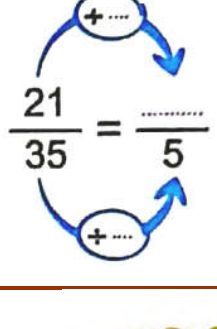
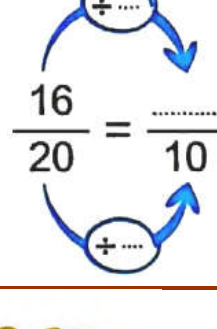
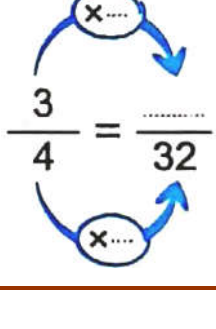
d $\frac{6}{9} = \frac{\dots\dots}{\dots\dots}$

e $\frac{5}{20} = \frac{\dots\dots}{\dots\dots}$

f $\frac{6}{21} = \frac{\dots\dots}{\dots\dots}$



Complete to get equivalent fractions:

 $\frac{5}{8} = \frac{\dots}{\dots}$	 $\frac{3}{18} = \frac{\dots}{\dots}$	 $\frac{1}{9} = \frac{\dots}{\dots}$	 $\frac{2}{6} = \frac{\dots}{\dots}$
 $\frac{14}{35} = \frac{\dots}{\dots}$	 $\frac{10}{15} = \frac{\dots}{\dots}$	 $\frac{7}{9} = \frac{\dots}{\dots}$	 $\frac{16}{32} = \frac{\dots}{\dots}$
 $\frac{20}{30} = \frac{\dots}{\dots}$	 $\frac{33}{44} = \frac{\dots}{\dots}$	 $\frac{6}{12} = \frac{\dots}{\dots}$	 $\frac{24}{40} = \frac{\dots}{\dots}$
 $\frac{20}{45} = \frac{4}{\dots}$	 $\frac{2}{7} = \frac{\dots}{35}$	 $\frac{3}{8} = \frac{24}{\dots}$	 $\frac{12}{24} = \frac{2}{\dots}$
 $\frac{4}{9} = \frac{\dots}{18}$	 $\frac{21}{35} = \frac{\dots}{5}$	 $\frac{16}{20} = \frac{\dots}{10}$	 $\frac{3}{4} = \frac{\dots}{32}$



Unit (9) Assessment

[1] Choose the correct answer:

- $\frac{3}{8} =$ _____
 A. $\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$ B. $\frac{1}{8} + \frac{1}{8} + \frac{1}{8}$ C. $\frac{2}{8} + 1$ D. $\frac{1}{8} + 2$
- $\frac{14}{3} =$ _____ as a mixed number.
 A. $4 \frac{1}{3}$ B. $3 \frac{2}{4}$ C. $4 \frac{2}{3}$ D. $2 \frac{2}{3}$
- $\frac{3}{8} >$ _____
 A. $\frac{3}{4}$ B. $\frac{5}{8}$ C. $1 \frac{1}{8}$ D. $\frac{1}{8}$
- Which of the following is the least?
 A. $\frac{4}{9}$ B. $\frac{7}{9}$ C. $\frac{2}{9}$ D. 1
- $2 \frac{3}{7} =$ _____ "as an improper fraction."
 A. $\frac{17}{3}$ B. $\frac{17}{7}$ C. $\frac{14}{7}$ D. $\frac{11}{7}$
- $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} =$ _____
 A. $\frac{4}{5}$ B. $\frac{111}{5}$ C. $3 \times \frac{1}{5}$ D. $\frac{3}{15}$
- $\frac{7}{8} =$ _____
 A. $\frac{21}{11}$ B. $\frac{14}{16}$ C. $1 \frac{7}{4}$ D. $\frac{14}{24}$

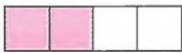
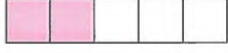




[2] Complete:

- $7 \frac{3}{9} -$ _____ $= 4 \frac{1}{9}$
- $5 \frac{5}{8} = \frac{\quad}{40}$
- _____ $- 2 \frac{1}{5} = 3 \frac{3}{5}$
- $5 \frac{1}{6} + 1 \frac{4}{6} =$ _____
- $2 + \frac{1}{7} + 3 + \frac{3}{7} =$ _____
- $2 - \frac{2}{9} =$ _____
- $5 \times \frac{1}{4} = \frac{3}{4} +$ _____
- $6 \frac{1}{7} - 2 \frac{3}{7} =$ _____



[3] Choose the correct answer:

- $\frac{5}{7} > \underline{\hspace{2cm}}$
 A. $\frac{7}{7}$ B. $\frac{6}{7}$ C. $\frac{1}{7}$ D. 1
- Which fraction is equivalent to $\frac{4}{12}$?
 A. $\frac{8}{20}$ B. $\frac{2}{9}$ C. $\frac{1}{4}$ D. $\frac{3}{9}$
- Sameh has 20 cakes. If $\frac{3}{5}$ of them are covered with chocolate, then the number of chocolate cakes = $\underline{\hspace{2cm}}$ cakes.
 A. 10 B. 13 C. 12 D. 17
- The bar model that represents the fraction of the colored parts of the multiplication sentence $2 \times \frac{1}{5}$ is $\underline{\hspace{2cm}}$
 A.  B.  C.  D. 
- $\frac{2}{3} = \frac{\underline{\hspace{1cm}}}{9}$
 A. 1 B. 4 C. 6 D. 8
- $\frac{3}{8} < \underline{\hspace{2cm}}$
 A. $\frac{3}{10}$ B. $\frac{3}{9}$ C. $\frac{3}{12}$ D. $\frac{3}{7}$

[4] Answer the following:

- Sara is making pancake batter. The recipe calls for $\frac{7}{10}$ of a jug of milk, and she only has $\frac{2}{10}$ of a jug of milk. How much more milk does Sara need to make the pancake batter?

- Arrange the following fractions from the greatest to the least.
 $\frac{7}{9}, \frac{4}{9}, \frac{9}{9}, \frac{1}{9}, \frac{5}{9}$

- Use the benchmark fractions 0, $\frac{1}{2}$ and 1 to order the following fractions from least to greatest.
 $\frac{3}{8}, \frac{7}{9}, \frac{5}{10}$

- Joy used $3\frac{4}{6}$ kg of meat. Amal used $2\frac{2}{6}$ kg of meat. What is the total amount of meat did they use altogether?





UNIT

10

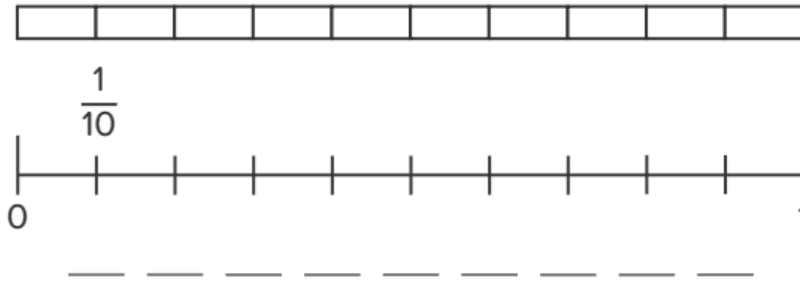
Theme 3 Fractions, Decimals, and Proportional Relationships

Unit 10 Decimals



Concept (1): Defining Decimals

Break It Apart Follow along with your teacher to fill in the fractions and decimals on the number line.



Connect the Parts Record what fraction and decimal are shown.

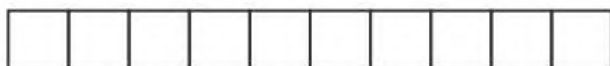


Shade in the model to represent the decimal.

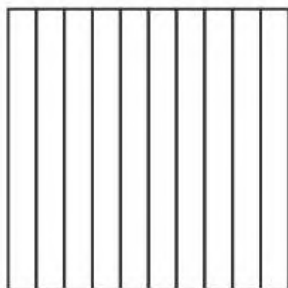
4. 0.7



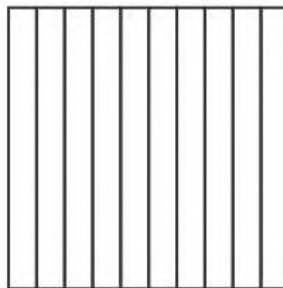
5. 0.5



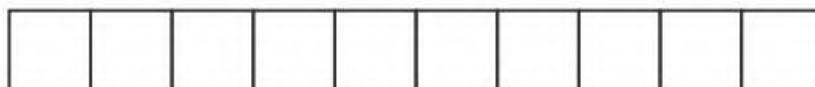
6. 0.6



7. 0.2



Hosam had a 1-meter piece of fabric. Of this piece, 0.2 meter had flowers on it, 0.6 meter was plain blue, and the rest had stars. Color in the strip of Hosam's fabric based on the description.

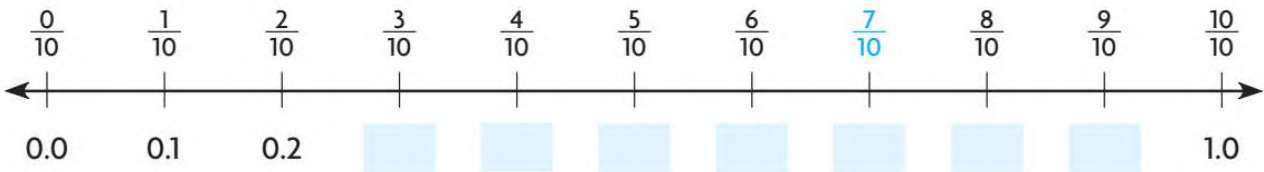


What decimal of Hosam's strip had stars? _____



Use a number line.

Label the number line with decimals that are equivalent to the fractions. Locate the point $\frac{7}{10}$.



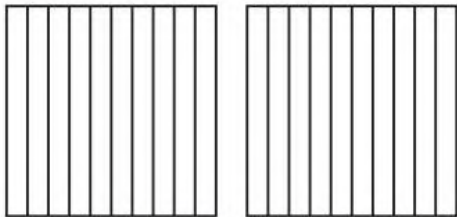
_____ names the same amount as $\frac{7}{10}$.



Use a model and a place-value chart.

Fraction

Shade $1\frac{6}{10}$ of the model.



Write: _____

Read: one and six tenths

Decimal

$1\frac{6}{10}$ is 1 whole and 6 tenths.

Think: Use the ones place to record wholes.

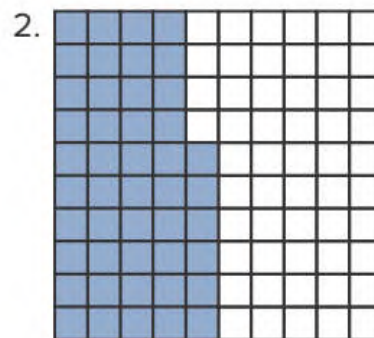
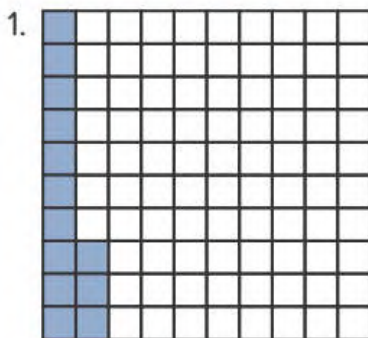
Ones	.	Tenths	Hundredths
	.		

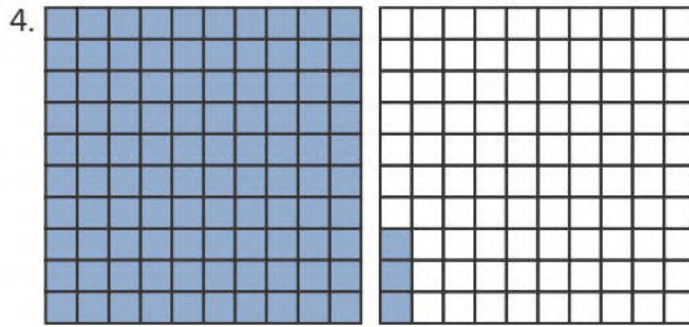
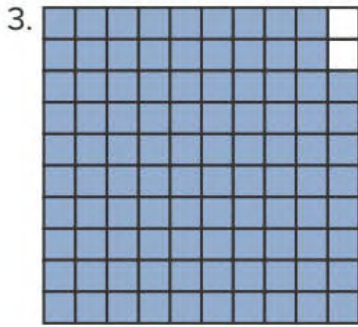
Write: _____

Read: _____

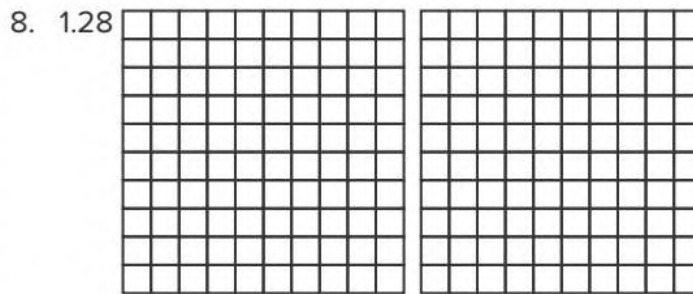
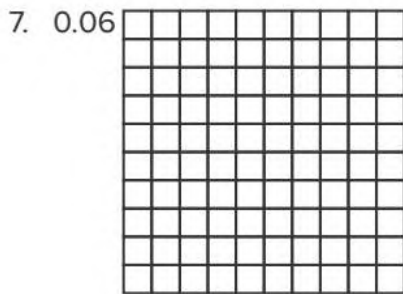
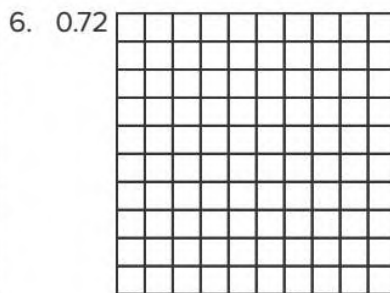
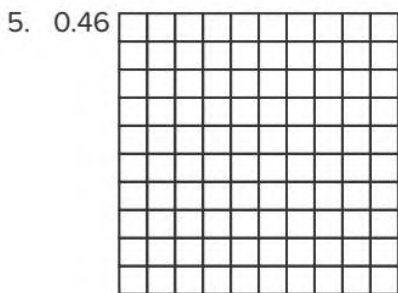


More Cups of Rice Record what decimal is shown.

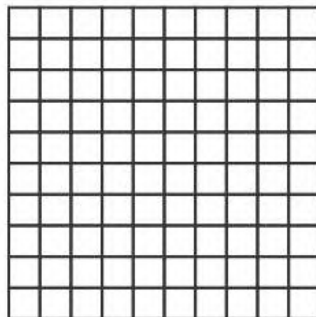




Shade in the grids to show the decimal stated.



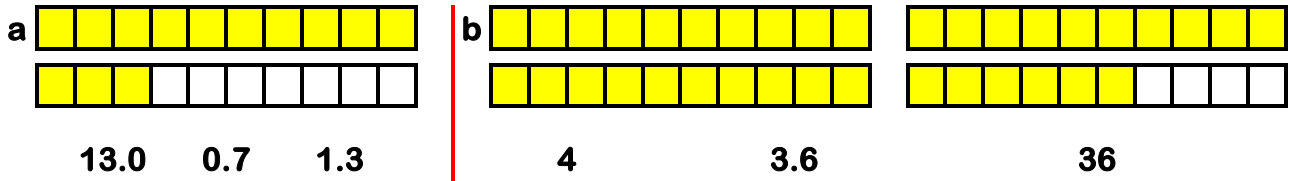
9. Basem had a quilt that his mother bought for him. 0.35 of it was colored blue. 0.4 of it was red. The rest was yellow. Color in the quilt to match the decimals described.



10. What decimal of Basem's quilt was yellow? _____



Circle the decimal that represent the shaded part:



Writing About Math Use the number to answer the questions: **532.89**

1. What is the value of the 3? _____
2. What digit is in the Hundredths place? _____
3. What is the value of the digit in the Hundreds place? _____
4. What digit is in the Tenths place? _____



Use the example in the chart to help you answer the following problems.

Standard Form	Word Form	Unit Form	Expanded Form
4.23	four and twenty-three hundredths	4 Ones, 2 Tenths, 3 Hundredths	$4 + 0.2 + 0.03$



Write the numbers in word form.

1. 4.53

2. 0.48

3. $2 + 0.1 + 0.03$



Write the numbers in unit form.

4. 4.52

5. seven and thirty-four hundredths

6. sixty-nine hundredths



Write the numbers in expanded form.

7. 2.04

8. two and fifty-Hundredths

9. 5 Ones, 6 Tenths, 8 Hundredths



Write the numbers in standard form.

10. 7 Ones, 9 Hundredths

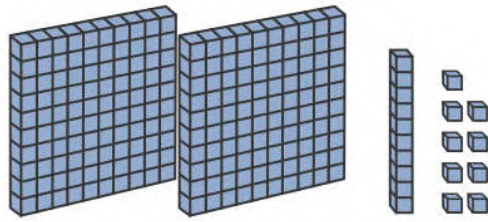
11. $5 + 0.5 + 0.01$

12. nine and forty-three Hundredths



Fill in the blanks to match the decimal models.

Example:

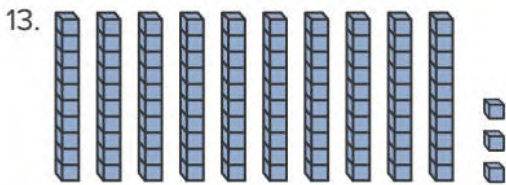


Standard form: 2.19

Word form: two and nineteen hundredths

Unit form: 2 Ones, 1 Tenth, 9 Hundredths

Expanded form: 2 + 0.1 + 0.09

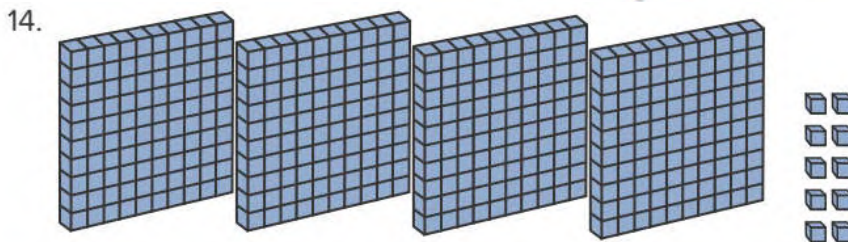


Standard form: _____

Word form: _____

Unit form: _____

Expanded form: _____



Standard form: _____

Word form: _____

Unit form: _____

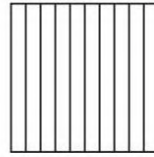
Expanded form: _____



Homework

1. Write five tenths as a fraction and as a decimal.

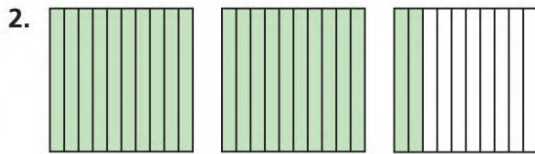
Fraction: _____ Decimal: _____

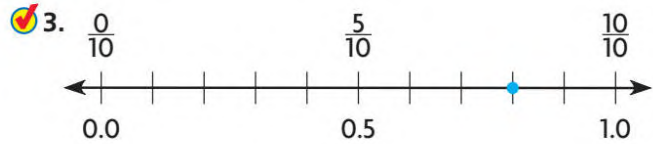


Ones	.	Tenths	Hundredths
	.		



Write the fraction or mixed number and the decimal shown by the model.

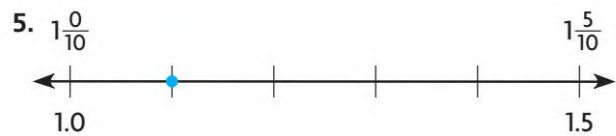


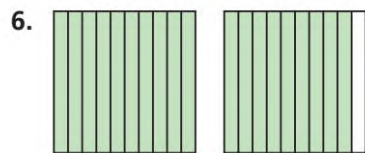


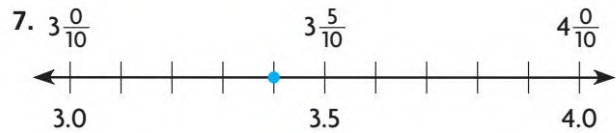


Write the fraction or mixed number and the decimal shown by the model.











Practice: Copy and Solve Write the fraction or mixed number as a decimal.

8. $5\frac{9}{10}$

9. $\frac{1}{10}$

10. $\frac{7}{10}$

11. $8\frac{9}{10}$

12. $\frac{6}{10}$

13. $6\frac{3}{10}$

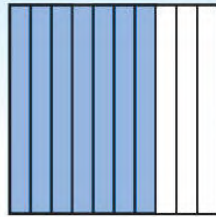
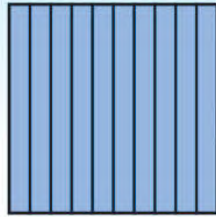
14. $\frac{5}{10}$

15. $9\frac{7}{10}$



THINK SMARTER

Select a number shown by the model. Mark all that apply.



$1\frac{7}{10}$

$\frac{70}{10}$

1.7

7

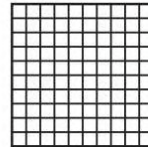
0.7

$\frac{17}{10}$



1. Shade the model to show $\frac{31}{100}$.

Write the amount as a decimal. _____

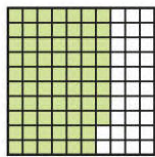


Ones	.	Tenths	Hundredths
	.		

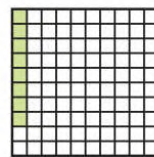


Write the fraction or mixed number and the decimal shown by the model.

2.



3.



4.

$6\frac{0}{100}$

$6\frac{50}{100}$

$7\frac{0}{100}$



6.00

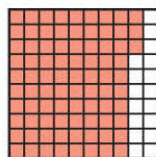
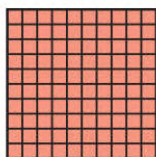
6.50

7.00

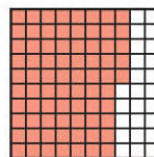


Write the fraction or mixed number and the decimal shown by the model.

5.



6.



7.

$\frac{0}{100}$

$\frac{50}{100}$

$\frac{100}{100}$



0.00

0.50

1.00



Practice: Copy and Solve Write the fraction or mixed number as a decimal.

8. $\frac{9}{100}$

9. $4\frac{55}{100}$

10. $\frac{10}{100}$

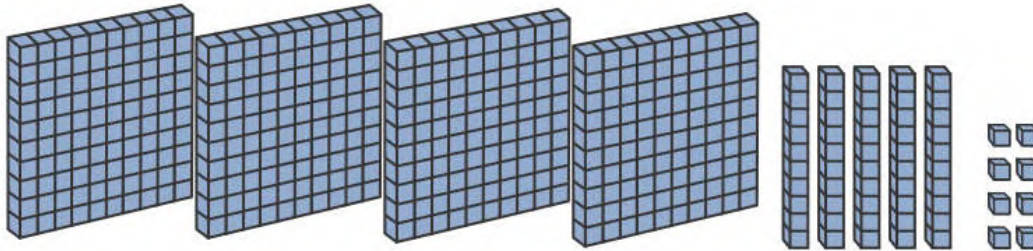
11. $9\frac{33}{100}$

12. $\frac{92}{100}$

13. $14\frac{16}{100}$



15.



Standard form: _____

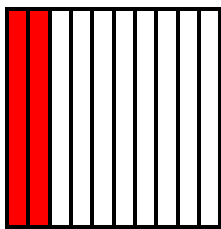
Word form: _____

Unit form: _____

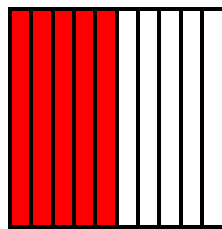
Expanded form: _____



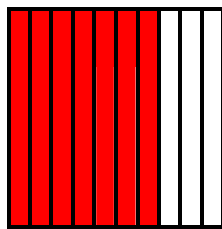
Join each decimal to its represented shape:



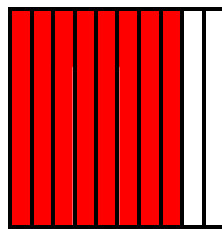
.



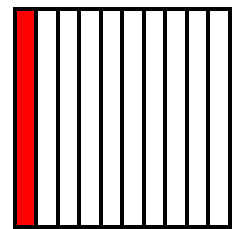
.



.



.



.

0.8

0.7

0.1

0.2

0.5



Concept (2): Decimals and Fractions



Mixed Number : $2 \frac{6}{10}$

Decimal : 2.6

Word form : Two and six tenths.



Write the fraction for each of the following decimals.

a. 0.4

b. 0.13

c. 0.07

d. 2.93

Solution 

a. $\frac{4}{10}$

b. $\frac{13}{100}$

c. $\frac{7}{100}$

d. $2 \frac{93}{100}$



Write the fraction form for each of the following decimals:

a. 0.9 =	b. 2.7 =	c. 3.74 =
d. 7.05 =	e. 7.6 =	f. 3.4 =
g. 10.05 =	h. 2.02 =	i. 2.20 =
j. 5.97 =	k. 4.79 =	l. 6.28 =
m. 3.27 =	n. 5.17 =	o. 3.07 =



Decompose the units to represent each number as Tenth and then write the number as a fraction:

a. 3

Tenths : _____

In fraction form : _____

b. 1

Tenths : _____

In fraction form : _____

c. 4

Tenths : _____

In fraction form : _____

d. 1.3

Tenths : _____

In fraction form : _____

e. 1.5

Tenths : _____

In fraction form : _____

f. 2.3

Tenths : _____

In fraction form : _____

g. 5.1

Tenths : _____

In fraction form : _____

h. 17.4

Tenths : _____

In fraction form : _____



Decompose the units to represent each number as Hundredth and then write the number as a fraction:

a. 1

Hundredths : _____

In fraction form : _____

b. 3

Hundredths : _____

In fraction form : _____

c. 5

Hundredths : _____

In fraction form : _____

d. 19

Hundredths : _____

In fraction form : _____



Complete:

a. $3.7 = \text{-----}$ tenths.

c. $198 \text{ tenths} = \text{-----}$ [as a decimal]

e. $3.74 = \text{-----}$ hundredths.

g. $39 \text{ tenths} = \text{-----}$ [as a decimal]

b. $5.2 = \text{-----}$ hundredths.

d. $291 \text{ hundredths} = \text{-----}$ [as a fraction]

f. $89.5 = \text{-----}$ tenths.

h. $2.14 = \text{-----}$ [hundredths]

**Put (✓) to the correct statement and (✗) to the incorrect one:**

a. $7.02 = 7 \frac{2}{10}$

[]

b. $14.80 = 14 \frac{8}{10}$

[]

c. $32 \text{ tenths} = 3.2$

[]

d. $175 \text{ hundredths} = 17.5$

[]

e. $8.1 = 81 \text{ tenths}$

[]

f. $30 \text{ hundredths} = \frac{30}{10}$

[]

**Circle the equations that show the equivalency:**

1. $\frac{1}{2} = \frac{3}{6}$

2. $\frac{2}{3} = \frac{2}{6}$

3. $\frac{8}{10} = \frac{4}{10}$

4. $\frac{8}{12} = \frac{4}{6}$

5. $\frac{2}{3} = \frac{6}{9}$

6. $\frac{4}{8} = \frac{0}{4}$

7. $\frac{1}{4} = \frac{5}{8}$

8. $\frac{2}{10} = \frac{4}{20}$

9. $\frac{5}{10} = \frac{1}{2}$



Are the two decimals equivalent ? Write equivalent or not equivalent.

a. 0.7 and 0.70 _____

b. 0.04 and 0.4 _____

c. 0.9 and 0.09 _____

d. 0.28 and 0.82 _____

e. 0.17 and 0.07 _____

f. 0.1 and 0.10 _____



Write an equivalent decimal for each. You may use decimal models.

- | | | | |
|--------------|---------------|---------------|--------------|
| a. 0.8 _____ | b. 0.7 _____ | c. 0.90 _____ | d. 0.2 _____ |
| e. 0.5 _____ | f. 0.10 _____ | g. 0.40 _____ | h. 0.6 _____ |



Are the two fractions equivalent? Write equivalent or not equivalent.

- | | |
|--|---|
| a. $\frac{3}{10}$ and $\frac{30}{100}$ _____ | b. $\frac{5}{100}$ and $\frac{50}{10}$ _____ |
| c. $\frac{80}{100}$ and $\frac{8}{10}$ _____ | d. $\frac{4}{100}$ and $\frac{4}{10}$ _____ |
| e. $\frac{60}{100}$ and $\frac{6}{10}$ _____ | f. $\frac{20}{100}$ and $\frac{2}{100}$ _____ |



Write an equivalent fraction for each.

- | | | | |
|---------------------------|---------------------------|-------------------------|---------------------------|
| a. $\frac{7}{10}$ _____ | b. $\frac{80}{100}$ _____ | c. $\frac{9}{10}$ _____ | d. $\frac{4}{10}$ _____ |
| e. $\frac{10}{100}$ _____ | f. $\frac{20}{100}$ _____ | g. $\frac{3}{10}$ _____ | h. $\frac{50}{100}$ _____ |



Fill the missing denominator or numerator. Circle the fraction that is more than 1 whole.

- | | | |
|---|--|--|
| a. $\frac{5}{10} = \frac{50}{\square}$ | b. $\frac{20}{100} = \frac{\square}{10}$ | c. $\frac{4}{10} = \frac{40}{\square}$ |
| d. $\frac{200}{100} = \frac{\square}{10}$ | e. $\frac{70}{\square} = \frac{7}{10}$ | f. $\frac{80}{10} = \frac{\square}{100}$ |
| g. $\frac{3}{10} = \frac{\square}{100}$ | h. $\frac{60}{100} = \frac{\square}{10}$ | i. $\frac{7}{10} = \frac{\square}{100}$ |
| j. $\frac{900}{100} = \frac{\square}{10}$ | k. $\frac{8}{\square} = \frac{80}{100}$ | l. $\frac{10}{100} = \frac{\square}{10}$ |



Homework



MULTIPLICATION

$4 \times 3 = \square$

$4 \times 5 = \square$

$4 \times 4 = \square$

$4 \times 6 = \square$

$4 \times 0 = \square$

$4 \times 7 = \square$

$4 \times 2 = \square$

$4 \times 1 = \square$

$4 \times 9 = \square$

$8 \times 7 = \square$

$8 \times 3 = \square$

$8 \times 4 = \square$

$8 \times 8 = \square$

$8 \times 2 = \square$

$8 \times 1 = \square$

$8 \times 5 = \square$

$8 \times 6 = \square$

$8 \times 0 = \square$

$8 \times 2 = \square$

$4 \times 6 = \square$

$4 \times 7 = \square$

$8 \times 5 = \square$

$8 \times 3 = \square$

$8 \times 8 = \square$

$4 \times 2 = \square$

$4 \times 1 = \square$

$4 \times 9 = \square$

$8 \times 8 = \square$

$4 \times 5 = \square$

$8 \times 7 = \square$

$8 \times 4 = \square$

$8 \times 9 = \square$

$8 \times 6 = \square$

$4 \times 3 = \square$

$8 \times 1 = \square$

$4 \times 4 = \square$



Decompose the units to represent each number as Tenth and then write the number as a fraction:

1. 1

Tenth _____

In fraction form _____

2. 3

Tenths _____

In fraction form _____

3. 1.5

Tenths _____

In fraction form _____

4. 2.3

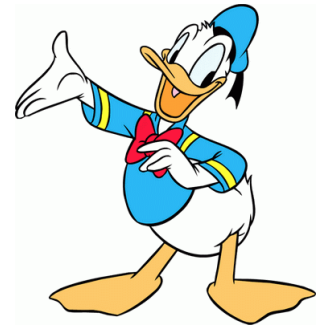
Tenths _____

In fraction form _____

5. 10.8

Tenths _____

In fraction form _____



Decompose the units to represent each number as Hundredth and then write the number as a fraction:

6. 1

Hundredths _____

In fraction form _____

7. 3

Hundredths _____

In fraction form _____



8. 1.5

Hundredths _____

In fraction form _____

9. 2.3

Hundredths _____

In fraction form _____

10. 10.8

Hundredths _____

In fraction form _____



Record an equivalent fraction and decimal for each problem:

1. $\frac{1}{10}$

Fraction: _____

Decimal: _____

2. $\frac{70}{100}$

Fraction: _____

Decimal: _____

3. $\frac{6}{10}$

Fraction: _____

Decimal: _____

4. 0.4

Fraction: _____

Decimal: _____

5. 0.30

Fraction: _____

Decimal: _____

6. 0.9

Fraction: _____

Decimal: _____



7. $\frac{10}{10}$

Fraction: _____

Decimal: _____

8. $1\frac{4}{10}$

Fraction: _____

Decimal: _____

9. 2.1

Fraction: _____

Decimal: _____



Choose the correct answer from **A**, **B**, **C** or **D**:

1. $0.2 =$ _____

- A. $\frac{2}{10}$ B. $\frac{2}{100}$
 C. $\frac{22}{100}$ D. $\frac{20}{10}$

2. $1.05 =$ _____

- A. $1\frac{5}{10}$ B. $1\frac{5}{100}$
 C. $1\frac{50}{100}$ D. $1\frac{15}{100}$

3. $\frac{13}{100} =$ _____

- A. 1.3 B. 1.03
 C. 0.13 D. 1.30

4. $5.7 =$ _____

- A. $5\frac{7}{100}$ B. $5\frac{70}{100}$
 C. $\frac{57}{100}$ D. $7\frac{5}{10}$

5. $8 =$ _____ hundredths.

- A. 0.08 B. 8
 C. 80 D. 800

6. $7.9 =$ _____ tenths.

- A. 0.79 B. 79
 C. 79 D. 790

7. $17.5 =$ _____ hundredths.

- A. 175 B. 1750
 C. 17500 D. 1.75

8. $20.9 =$ _____ tenths.

- A. 20.9 B. 2.09
 C. 209 D. 2090



Concept (3): Working With Decimals

Convert Fractions to Decimals and Decimals to Fractions:

1. $\frac{2}{10} =$ _____

2. $0.5 =$ _____

3. $\frac{45}{100} =$ _____

4. $0.45 =$ _____

5. $\frac{6}{10} =$ _____

6. $\frac{99}{100} =$ _____

7. $0.03 =$ _____

8. $\frac{78}{100} =$ _____

9. $2.3 =$ _____

10. $0.90 =$ _____

11. $\frac{3}{10} =$ _____

12. $0.6 =$ _____

13. $0.1 =$ _____

14. $0.11 =$ _____

15. $\frac{90}{100} =$ _____

16. $\frac{33}{100} =$ _____

17. $1.7 =$ _____

18. $\frac{47}{100} =$ _____

19. $0.40 =$ _____

20. $\frac{1}{100} =$ _____



Using the place value chart, Put (<), (>) or (=):

1. 0.34 _____ 0.4

Ones	Decimal	Tenths	Hundredths
0	.	3	4
0	.	4	

2. 0.45 _____ 0.04

Ones	Decimal	Tenths	Hundredths
	.		
	.		

3. 0.23 _____ 0.3

Ones	Decimal	Tenths	Hundredths
	.		
	.		

4. 0.54 _____ 0.45

Ones	Decimal	Tenths	Hundredths
	.		
	.		

5. 0.62 _____ 0.26

Ones	Decimal	Tenths	Hundredths
	.		
	.		





Bag of figs

1.3 kg



Mangoes

2.01 kg



Plums

1.21 kg



Pomegranates

2.25 kg

Record the mass of each fruit on the place value chart.

Fruit	Ones	Decimal	Tenths	Hundredths
Figs				
Mangoes				
Plums				
Pomegranates				

1. Which item weighs the least?

2. Which item weighs the most?

3. Which items weigh more than the plums?

4. Which items weigh less than the mango?



Compare Using (<), (>) or (=):

a. $0.2 \bigcirc 0.13$

b. $0.31 \bigcirc 0.13$

c. $0.34 \bigcirc 0.04$

d. $0.30 \bigcirc 0.3$

e. $0.35 \bigcirc 0.3$

f. $0.7 \bigcirc 0.68$

g. $0.18 \bigcirc 0.4$

h. $0.60 \bigcirc 0.8$

i. $0.07 \bigcirc 0.7$



Compare Using (<), (>) or (=):

1. $\frac{24}{100}$ _____ 0.6

2. $\frac{6}{10}$ _____ .34

3. 1.04 _____ 98 Tenths

4. $\frac{134}{100}$ _____ 1.03

5. $\frac{9}{10}$ _____ 0.89

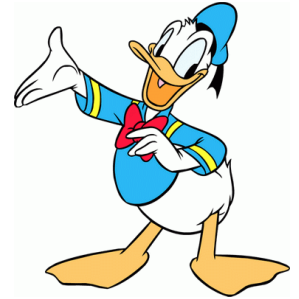
6. 7 Tenths _____ 0.7

7. 2.07 _____ 2 Ones and 7 Tenths

8. $\frac{50}{100}$ _____ 5.00

9. 0.23 _____ $\frac{23}{10}$

10. 0.42 _____ $\frac{4}{10}$



Choose the correct answer from A, B, C or D:

1. 7.2 ○ 7.15

A. > B. < C. =

2. 2.4 ○ $2\frac{42}{100}$

A. > B. < C. =

3. $\frac{125}{100}$ ○ 1.3

A. > B. < C. =

4. Which of the following is greater than 1.64 ?

- A. 1.7 B. 1.5
C. 1.47 D. 1.08

5. Which of the following is greater than 0.25 ?

- A. 0.22 B. $\frac{13}{100}$
C. 0.4 D. 15 hundredths

6. Which of the following is smaller than $\frac{36}{100}$?

- A. $\frac{4}{10}$ B. 0.7
C. 0.53 D. 0.23

7. 3.74 ○ $\frac{374}{100}$

A. > B. < C. =

8. 17 hundredths ○ 17 tenths.

A. > B. < C. =



Make Equivalent Fractions:

$$1. \frac{30}{100} = \frac{\boxed{}}{10}$$

$$2. \frac{4}{10} = \frac{40}{\boxed{}}$$

$$3. \frac{2}{10} = \frac{\boxed{}}{100}$$

$$4. \frac{90}{100} = \frac{\boxed{}}{10}$$

$$5. \frac{50}{100} = \frac{\boxed{}}{10}$$



$$6. 1\frac{70}{100} = 1\frac{7}{\boxed{}}$$

$$7. \frac{100}{100} = \frac{\boxed{}}{10}$$

$$8. \frac{40}{10} = \frac{\boxed{}}{100}$$

$$9. \frac{600}{100} = \frac{60}{\boxed{}}$$

$$10. 2\frac{8}{10} = 2\frac{\boxed{}}{100}$$



Complete to find the result:

$$a. \frac{6}{10} + \frac{23}{100} = \frac{}{100} + \frac{23}{100} = \frac{}{100}$$

$$b. \frac{7}{10} + \frac{60}{100} = \frac{7}{10} + \frac{}{10} = \frac{}{10}$$

$$c. \frac{3}{10} + \frac{8}{100} = \frac{}{100} + \frac{8}{100} = \frac{}{100}$$

$$d. \frac{23}{100} + \frac{9}{10} = \frac{23}{100} + \frac{}{100} = \frac{}{100}$$

$$e. \frac{32}{100} + \frac{5}{10} = \frac{32}{100} + \frac{}{100} = \frac{}{100}$$

$$f. \frac{6}{10} + \frac{82}{100} = \frac{}{100} + \frac{82}{100} = \frac{}{100}$$



Homework

Using the place value chart, Put (<), (>) or (=):

6. 0.80 _____ 0.09

Ones	Decimal	Tenths	Hundredths
	.		
	.		

7. 0.73 _____ 0.69

Ones	Decimal	Tenths	Hundredths
	.		
	.		

8. 0.10 _____ 0.1

Ones	Decimal	Tenths	Hundredths
	.		
	.		

9. 0.49 _____ 0.04

Ones	Decimal	Tenths	Hundredths
	.		
	.		

10. 0.27 _____ 0.7

Ones	Decimal	Tenths	Hundredths
	.		
	.		



Compare Using (<), (>) or (=):

a. $0.52 \bigcirc 0.54$

b. $0.9 \bigcirc 0.82$

c. $1.52 \bigcirc 1.45$

d. $3.7 \bigcirc 3.70$

e. $3.4 \bigcirc 4.56$

f. $2.05 \bigcirc 2.15$

**Compare Using (<), (>) or (=):**

a. $\frac{24}{100} \bigcirc 0.6$

b. $3.72 \bigcirc 3\frac{7}{100}$

c. $\frac{6}{10} \bigcirc 0.34$

d. $\frac{134}{100} \bigcirc 1.03$

e. $\frac{200}{100} \bigcirc 0.20$

f. $1.04 \bigcirc 98 \text{ tenths}$

g. 3 hundredths \bigcirc 2 tenths

h. $0.23 \bigcirc \frac{23}{10}$

i. $\frac{8}{10} \bigcirc 0.79$

j. 7 tenths \bigcirc 0.7

k. $\frac{50}{100} \bigcirc 5.00$

l. $3.7 \bigcirc 3\frac{17}{100}$

m. 2.07 \bigcirc 2 Ones, 7 Tenths

n. $\frac{9}{10} \bigcirc 0.89$

o. 3 hundredths $\bigcirc \frac{30}{100}$

p. $0.42 \bigcirc \frac{4}{10}$

q. $8.21 \bigcirc 8\frac{13}{100}$

r. 38 hundredths \bigcirc 324 tenths

s. $7\frac{2}{100} \bigcirc 3.08$

t. $0.37 \bigcirc 24 \text{ tenths}$

**Choose the correct answer from A, B, C or D:**

9. $12.6 < 12.67$

A. 6

B. 7

C. 8

D. 9

10. $3.07 \bigcirc 3 \text{ Ones, } 7 \text{ Tenths.}$

A. >

B. <

C. =

11. Which of the following is NOT true ?

A. $7.32 < 7.4$

B. $3.78 > 3.54$

C. $0.01 < 0.1$

D. $\frac{13}{10} > 3.1$

12. Which of the following is true ?

A. $0.53 > 0.55$

B. $0.03 > 0.3$

C. $1.1 > 0.99$

D. $4.8 < 4.75$



Make Equivalent Fractions:

a. $\frac{6}{10} = \frac{\quad}{100}$

b. $\frac{3}{10} = \frac{\quad}{100}$

c. $\frac{4}{10} = \frac{40}{\quad}$

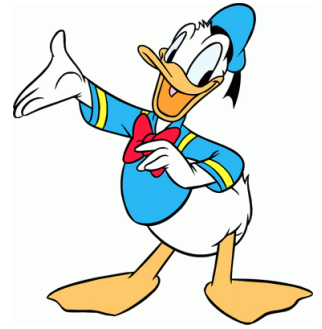
d. $\frac{20}{100} = \frac{2}{\quad}$

e. $\frac{70}{100} = \frac{7}{\quad}$

f. $\frac{900}{100} = \frac{90}{\quad}$

g. $\frac{80}{100} = \frac{8}{\quad}$

h. $\frac{50}{100} = \frac{\quad}{10}$

**Find the result:**

a. $\frac{7}{10} + \frac{25}{100} = \underline{\hspace{2cm}}$

b. $\frac{41}{100} + \frac{5}{10} = \underline{\hspace{2cm}}$

c. $\frac{32}{100} + \frac{31}{100} = \underline{\hspace{2cm}}$

d. $\frac{72}{100} + \frac{54}{100} = \underline{\hspace{2cm}}$

e. $\frac{3}{10} + \frac{70}{100} = \underline{\hspace{2cm}}$

f. $\frac{40}{100} + \frac{5}{10} = \underline{\hspace{2cm}}$

g. $\frac{6}{10} + \frac{40}{100} = \underline{\hspace{2cm}}$

h. $\frac{20}{100} + \frac{8}{10} = \underline{\hspace{2cm}}$



Unit (10) Assessment

[1] Choose the correct answer:

- a. The value of the digit 3 in the number 15.23 is _____
- A. 0.03 B. 0.30 C. 3 D. 30
- b. $0.07 =$ _____ "as a fraction."
- A. $\frac{7}{10}$ B. $\frac{7}{100}$ C. $\frac{70}{10}$ D. $\frac{70}{100}$
- c. 1.52 1.6
- A. $>$ B. $<$ C. $=$
- d. $7 + 0.1 + 0.05 =$ _____
- A. 71.5 B. 7.15 C. 7.51 D. 1.75
- e. Which fraction is equivalent to 0.9 ?
- A. $\frac{90}{10}$ B. $\frac{9}{100}$ C. $\frac{9}{10}$ D. 90
- f. $\frac{35}{100} + \frac{2}{10} <$ _____
- A. $\frac{7}{10}$ B. $\frac{55}{100}$ C. $\frac{3}{10}$ D. $\frac{49}{100}$
- g. The digit in the tenths place in the number 56.79 is _____
- A. 5 B. 6 C. 7 D. 9



[2] Complete:

- a. $\frac{5}{10} + \frac{25}{100} =$ _____
- b. 3.16 in word form is _____
- c. 5.7 = _____ tenths
- d. The place value of the digit 3 in the number 54.32 is _____
- e. Six and eight hundredths = _____ in standard form.
- f. 21.7 = _____ hundredths
- g. $1\frac{6}{10} + \frac{24}{100} =$ _____
- h. 5 tens and 3 tenths = _____



[3] Choose the correct answer:

a. $0.07 + 0.2 =$ _____

- A. 72 tenths B. 27 tenths C. 72 hundredths D. 27 hundredths

b. $2\frac{1}{10} + 3\frac{1}{100} =$ _____

- A. 5.2 B. 5.12 C. 5.11 D. 5.22

c. $7.2 >$ _____

- A. 7.3 B. 7.16 C. 7.20 D. 7.29

d. $\frac{2}{10} + \frac{27}{100} =$ _____

- A. $\frac{29}{100}$ B. $\frac{209}{100}$ C. $\frac{47}{100}$ D. $\frac{49}{100}$

e. $0.34 \bigcirc 0.4$

- A. $>$ B. $<$ C. $=$

f. $\frac{810}{100} = \frac{\quad}{10}$

- A. 8100 B. 810 C. 81 D. 8.1

g. $1\frac{40}{100} =$ _____

- A. 140 B. 14 C. 1.4 D. 1.04

**[4] Answer the following:**

1. Mohamed was training for the race. On Sunday, he ran for $\frac{7}{10}$ km. On Monday, he ran for $\frac{36}{100}$ km. What distance did he run in all ?

2. Mostafa and his brother have two sandwiches of the same size. Mostafa ate 0.7 of his sandwich. His brother ate $\frac{25}{100}$ of his sandwiches. Who ate more?

3. Amira bought 1.5 kilograms of tomatoes. Nada bought 1.6 kilograms of tomatoes. Who bought less ?

4. Maha wrote 7.03 in word form as seven and 3 tenths
Is Maha right or wrong ? If she is wrong correct her mistake.





UNIT

11

Theme 3 | Fractions, Decimals, and Proportional Relationships

Unit 11

Data with Fractions



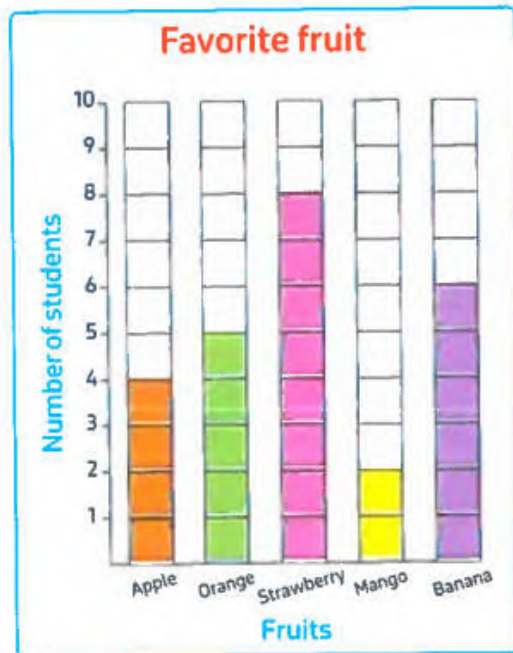
Concept (1)

Creating and Analyzing Graphs

Remember

- You have learned before that data can be represented by more than one way.
- These data about student's favorite fruit. Sandra represented these data by a bar graph.

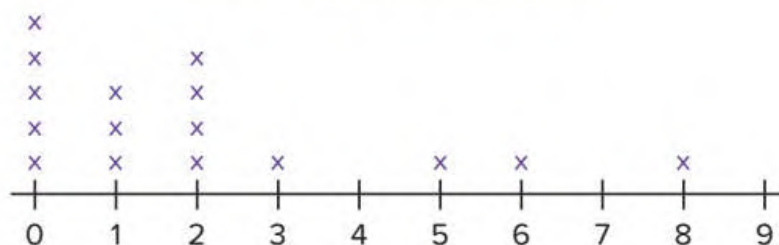
Favorite fruit	
Fruit	Number
Apple	4
Orange	5
Strawberry	8
Mango	2
Banana	6



A bar graph is used to compare data.

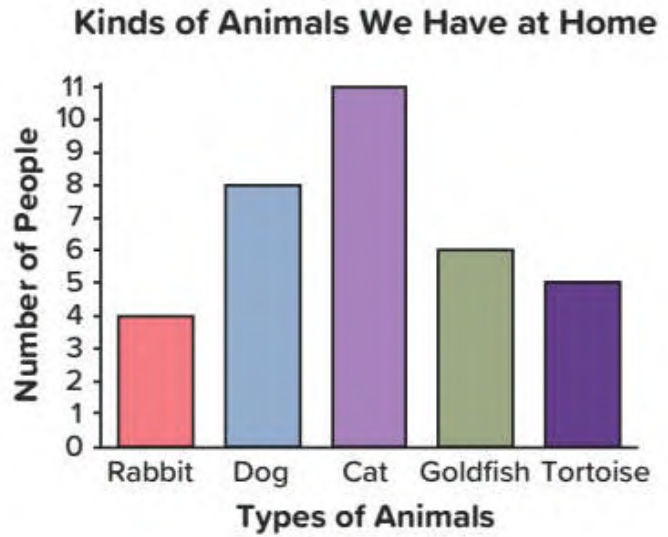
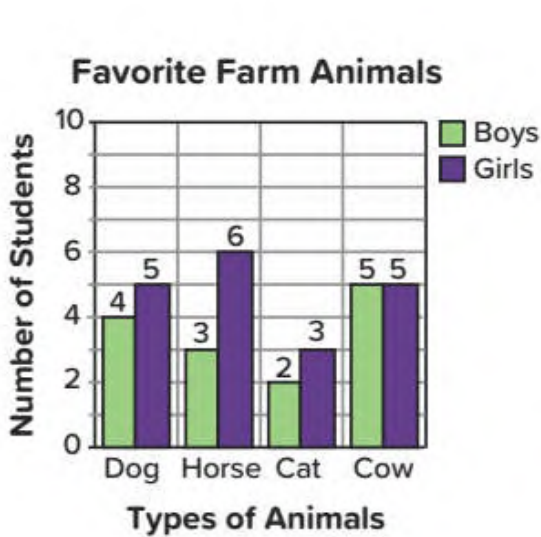


Number of Animals at Home



Key
x = 1 student





Favorite Flavors of Ice Cream

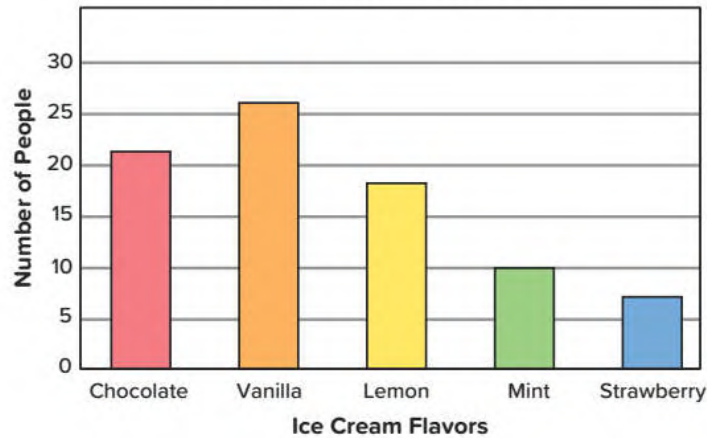


Table 1: Minimum and Maximum Monthly Temperatures in Cairo

Month	Minimum	Maximum
January	9	19
February	10	20
March	12	24
April	15	28

1. Could this data be represented in a double bar graph?



Table 2: Favorite Sports

Sport	Number of Students
Soccer	48
Basketball	24
Swimming	32
Gymnastics	12

2. Could this data be represented in a double bar graph?



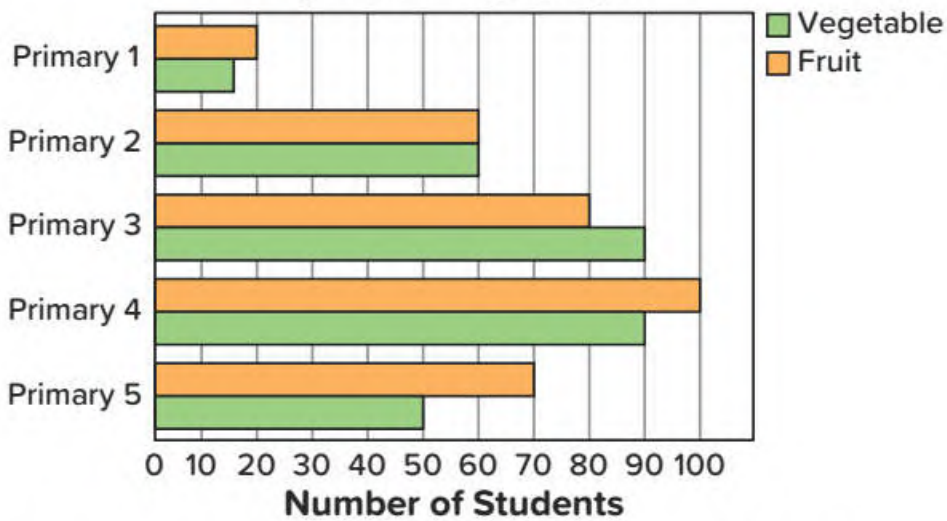
Table 3: Favorite Foods

Food	Boys	Girls
Baklava	25	18
Feteer Meshaltet	17	12
Ful Medames	20	26
Tamiya	11	16

3. Could this data be represented in a double bar graph?



**Table 4: Fruits or Vegetables
(Choose only one.)**



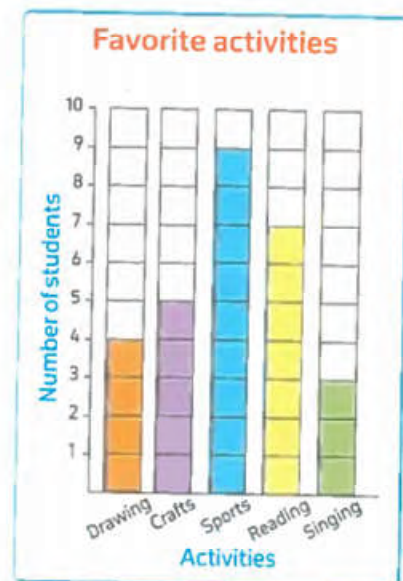
4. Which grade has the same number of students who like fruit and vegetables?
5. Which grade likes vegetables more than fruit?



The following graph shows student's votes for their favorite activities.

Complete the following table. Then answer the questions.

		Favorite activities				
Activity	Drawing	Crafts	Sports	Reading	Singing	
Number						



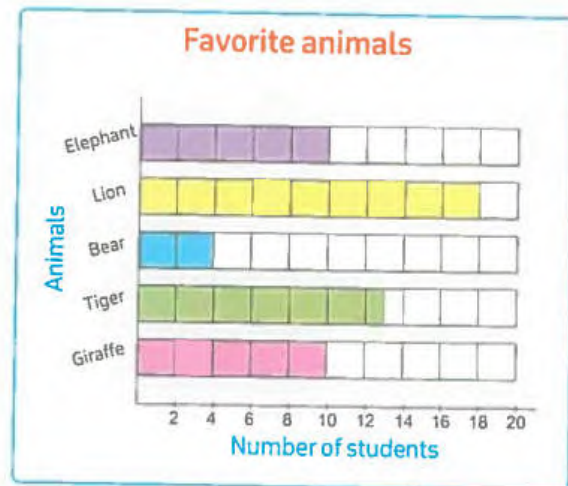
- a. Which activity do most students prefer ?
- b. Which activity was chosen by the fewest students ?
- c. How many students chose reading ?
- d. How many more students chose sports than crafts ?
- e. Which two activities their sum equals the number of students chose sports ?



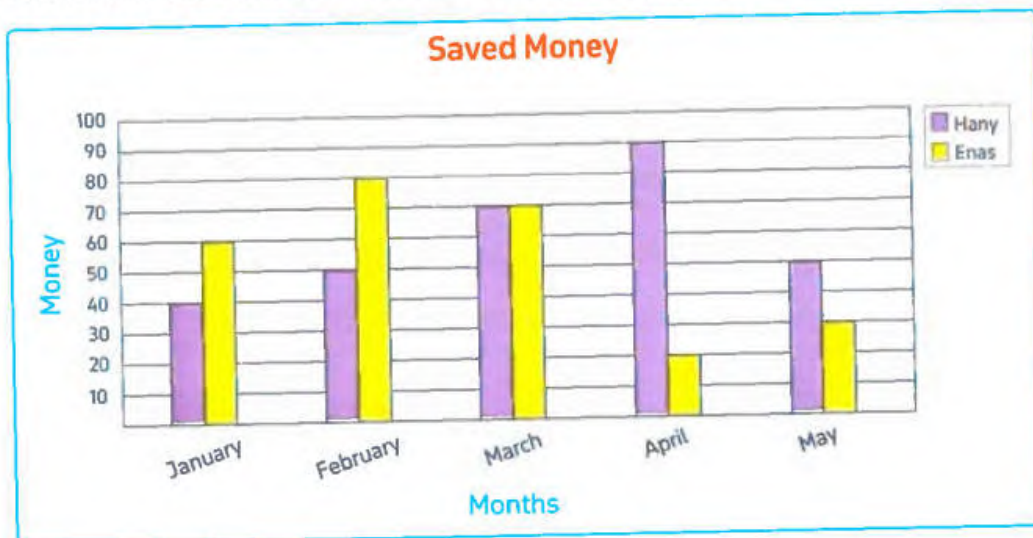
The following graph shows student's votes for their favorite animal.

Answer the following questions.

- Which animal is liked the most ?
- Which animal is liked the least ?
- How many students liked tiger ?
- Which two animals were liked by the same number of students ?
- How many more students liked tiger than bear ?



The following double bar graph shows the sum of money in pounds which Hany and Enas saved in 5 consecutive months. Observe the graph , then answer the questions.



- What is the highest amount did Hany save ? Which month ?
- What is the highest amount did Enas save ? Which month ?
- What is the total saved amount for February ?
- What is the total amount did Hany save in all ?
- What is the total amount did Enas save in all ?
- Which month did Hany and Enas save the same amount ?
- Who saved the most ? Who saved the least ?
- What is the difference between their amount in April ?



. A meteorologist compares rain fall in 2000 and 2020 in different countries in sub-saharan Africa.

Circle the best type of graph that represents this data.

Line plot

bar graph

pictograph

double bar graph



The data showing the favorite fast food of boys and girls of grade four.

Fast Food	Pizza	Noodles	Pasta	Burgers
Boys	25	40	15	25
Girls	30	35	30	45

Circle the best type of graph that represents this data.

Line plot

bar graph

pictograph

double bar graph



Use the following data to make a line plot, then answer the questions.

a. 11 kg , $12 \frac{1}{4}$ kg , $11 \frac{3}{4}$ kg , $11 \frac{1}{2}$ kg , 12 kg , $11 \frac{1}{2}$ kg , $11 \frac{1}{4}$ kg , $11 \frac{1}{4}$ kg , $11 \frac{1}{2}$ kg , 12 kg



1. Give the line plot a title.
2. What is the most common record ?
3. What is the least common record ?



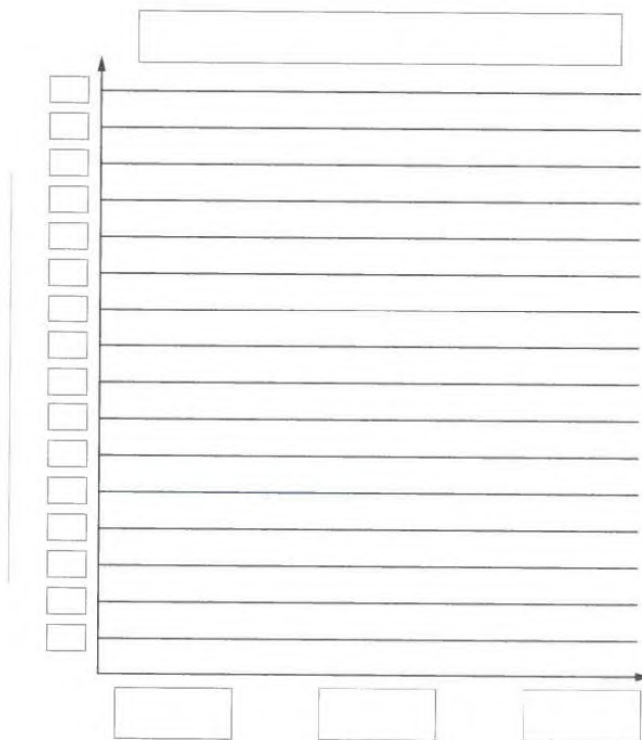
Use the following data to make a line plot.

$6\frac{1}{2}$	7	5	7	7	6	$6\frac{1}{2}$	$7\frac{1}{2}$	$5\frac{1}{2}$	$6\frac{1}{2}$
$5\frac{1}{2}$	6	$6\frac{1}{2}$	$6\frac{1}{2}$	$5\frac{1}{2}$	7	5	6	$6\frac{1}{2}$	$5\frac{1}{2}$



The following data shows the marks of three students in Mathematics and Science tests and full mark is 10.

Represent these data using double bar graph.



Name \ Subject	Andy	Reem	Nour
Mathematics	7	6	$5\frac{1}{2}$
Science	$7\frac{1}{2}$	$6\frac{1}{2}$	8



Homework

3 m , $3\frac{1}{3}$ m , 4 m , $4\frac{1}{3}$ m , $3\frac{2}{3}$ m , $3\frac{1}{3}$ m , $4\frac{2}{3}$ m , $4\frac{1}{3}$ m
 , 4 m , 3 m , $3\frac{1}{3}$ m , $4\frac{2}{3}$ m.



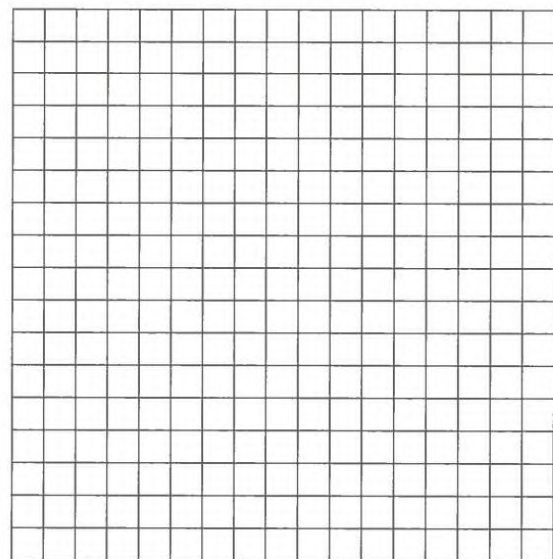
1. Give the line plot a title.
2. What is the most common record ?
3. What is the least common record ?



The following data shows the walking distance in a week by two friends Bassem and Amal. The data are given in kilometers. Represent these data by a double bar graph showing the week's data. Then use the graph to answer the following questions.

Days Name	Sunday	Monday	Tuesday	Wednesday	Thursday
Bassem	$2\frac{1}{4}$	$1\frac{1}{2}$	$3\frac{3}{4}$	3	$3\frac{1}{2}$
Amal	$1\frac{3}{4}$	$1\frac{1}{2}$	$2\frac{1}{2}$	$3\frac{1}{4}$	4

- a. Which day Bassem walked the longest distance ?
- b. Which day Amal walked the shortest distance ?
- c. On which day did Bassem and Amal's total distance equals 4 kilometers ?
- d. How many total kilometers did Amal walk in all ?
- e. How many total kilometers did Bassem walk in all ?
- f. On which day did Bassem walk twice as far as he did in Monday ?



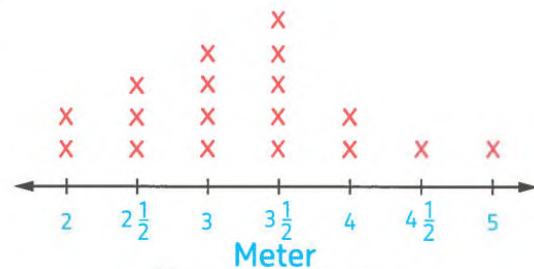
Unit (11) Assessment

[1] Choose the correct answer:

- a. Which of the following can be represented by a line plot ?
- A. Our favorite sports. B. Our favorite colors.
C. Our weights. D. Our favorite food.
- b. Which of the following can be represented by a double bar graph ?
- A. Favorite animal. B. Marks of friends in Math .
C. Marks of friends in Math and Arabic . D. Our heights.
- c. To represent the number of walking hours for Ahmed and Hassan in one week you can use _____
- A. line plot. B. pictograph. C. double bar graph. D. bar graph.
- d. Maged collected some data about the favorite pet of his friends. Which kind of representing data is the best ?
- A. Line plot. B. Double bar graph. C. Bar graph.

- e. The opposite line plot represents the lengths of some trees by meter. Which length represents the greatest number of tree ?

- A. $2\frac{1}{2}$ B. 3
C. $3\frac{1}{2}$ D. 4



Key Each x = 1 tree

- f. Which type of graph is suitable to represent these data ?

Name	Ahmed	Nora	Sally	Ola
Age	13	17	15	10

- A. Double bar graph. B. Line plot.
C. Bar graph.

- g. Which type of graph is suitable for these data ?

Subject	Math	English	Arabic	Science	Art
Hany	20	19	15	18	17
Mona	17	20	19	20	15

- A. Double bar graph. B. Line plot. C. Bar graph.



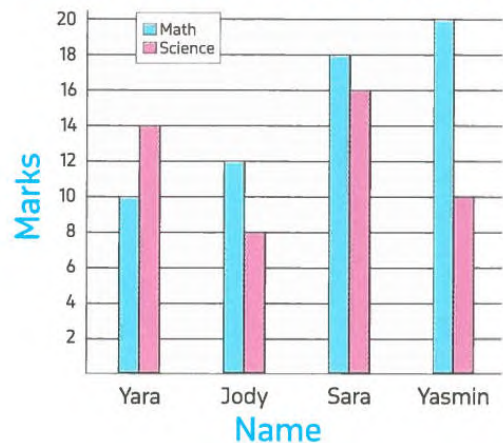
[2] Complete:

• The opposite graph shows the marks of four students in Math and Science tests.

Complete from (a) to (d).

- a. The student who got the highest mark in Math is _____
- b. The difference between the Math mark and Science mark of Yasmin is _____
- c. The student who got the lowest mark in Science is _____
- d. The total marks of Math and Science of Sara is _____

Marks of Math and Science tests



• The opposite table represent the favorite color of some students.

Complete from (e) to (h).

- e. The most favorite color is _____
- f. The total number of students is _____
- g. The number of students who liked red and yellow is _____
- h. The difference between the number of students who liked green and white is _____

The favorite color

Color	Number
Red	12
Yellow	18
Black	4
White	11
Green	9



[3] Choose the correct answer:

- a. Which type of graph is suitable to represent these data ?

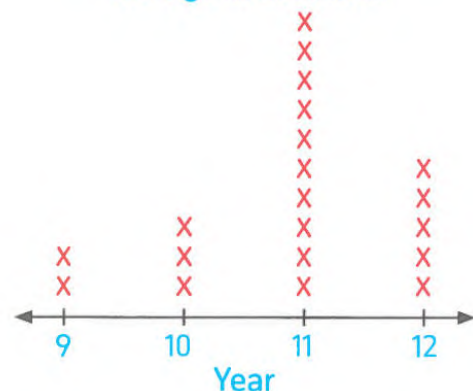
Number of hours	0	1	2	3	4	5
Number of students	2	4	10	11	3	1

- A. Double bar graph. B. Line plot. C. Pictograph.

- b. In the opposite line plot, if it represents the ages of 40 students in grade 4, then each X stands for _____ student[s].

- A. one B. two
- C. three D. four

The age of students



c. Which type of graph is suitable to represent these data ?

- A. Double bar graph.
B. Line plot.
C. Bar graph.

1	3	2	5	1	4
3	2	4	1	3	1
2	1	3	4	1	5

d. From the opposite table the value of X is _____

- A. 6 B. 7
C. 8 D. 9

Books Readers	
Name	Number
Amgad	4
Ola	5
Nora	10
Alaa	X
Noha	2
Total	30

e. The football coach scored the following numbers of goals in the last twenty matches.

3 , 0 , 1 , 5 , 4 , 3 , 2 , 6 , 4 , 2 , 3 , 3 , 0 , 7 , 1 , 1 , 2 , 3 , 4 , 3

Which number had the highest frequency ?

- A. 3 B. 5 C. 6 D. 7

f. Which type of graph is suitable to represent these data ?

- A. Double bar graph.
B. Line plot.
C. Bar graph.

Test Evaluation	
Evaluation	Total
Excellent	2
V.good	8
Good	6
Pass	4

g. From the opposite table, the value of X is _____

- A. 6 B. 4
C. 5 D. 6

Subject Marks	
Subject	Number
Math	X
English	13
Arabic	15
Science	11
Music	6
Total	50



[4] Answer the following:

a. Use the following data to make a line plot.

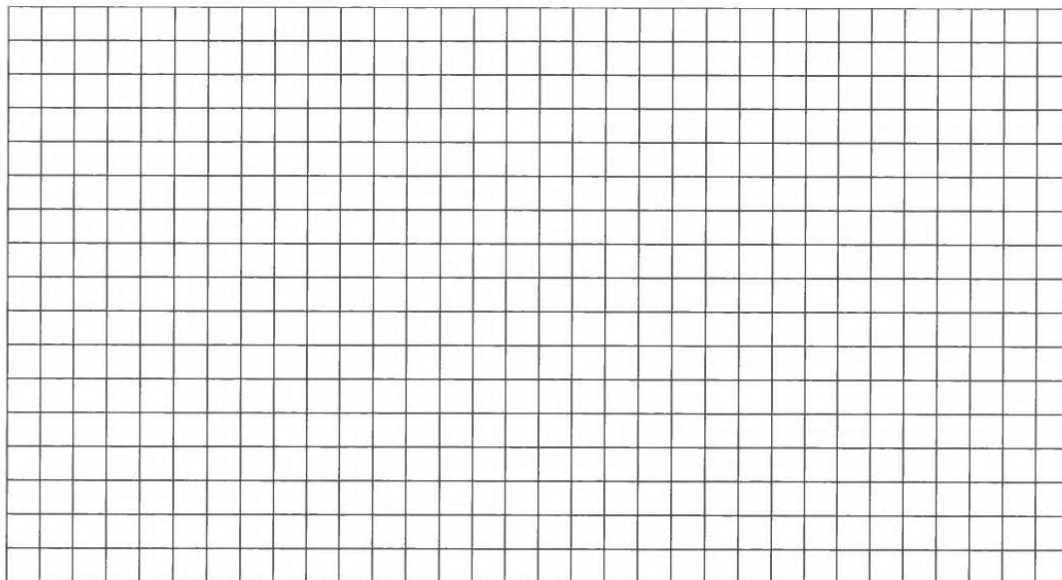
$5\frac{1}{2}$	$3\frac{1}{2}$	$6\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{1}{2}$	$4\frac{1}{2}$	$6\frac{1}{2}$	$5\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{1}{2}$
4	3	5	$5\frac{1}{2}$	$3\frac{1}{2}$	4	6	6	4	5



b. The following data shows the number of study hours in a week by Eslam and Mina.

Represent these data by a double bar graph.

Name \ Days	Sat.	Sun.	Mon.	Tue.	Wed.	Thu.	Fri.
Eslam	3	4	$5\frac{1}{2}$	5	3	5	$3\frac{1}{2}$
Mina	$3\frac{1}{2}$	3	5	6	$4\frac{1}{2}$	$6\frac{1}{2}$	2





UNIT

12

Theme 4 | Applications of Geometry
and Measurement



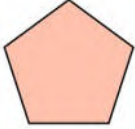




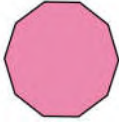
Unit 12 Geometry



Concept (1)

Points, Lines, Rays, and Plane Figures

Polygons

The Polygon	Name	Number of sides	Number of vertices
	Triangle		
	Quadrilateral		
	Pentagon		
	Hexagon		
	Heptagon		
	Octagon		
	Nonagon		
	Decagon		

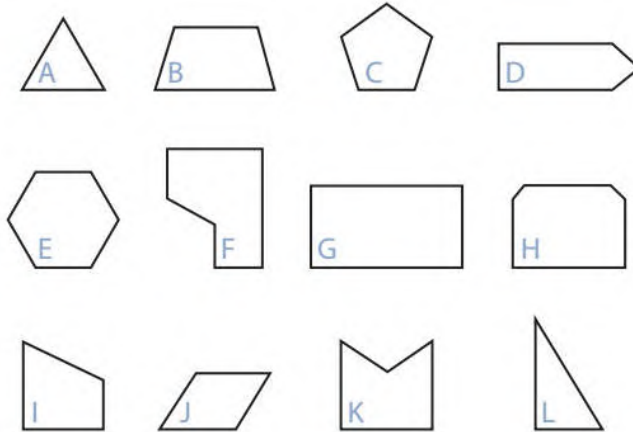
Note: For any polygon:

Number of sides = Number of vertices



Lesson (1): Two Dimensional Shapes

Similar Shapes Look at the shapes. Choose two shapes that have something in common. Write the letters of the shapes you chose, and then write 1–2 sentences describing what the shapes have in common.



1. Shape _____ and Shape _____ are similar because

2. Shape _____ and Shape _____ are similar because

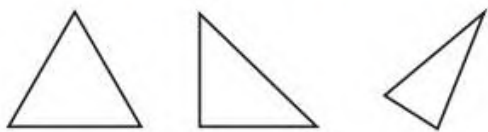
3. Shape _____ and Shape _____ are similar because

4. Shape _____ and Shape _____ are similar because



Identifying and Drawing Shapes Record the name of the shape, the number of sides, and the number of vertices.

1.

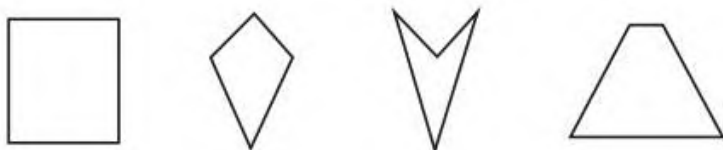


Name _____

Number of Sides _____

Number of Vertices _____

2.

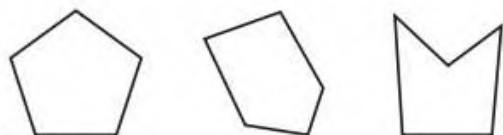


Name _____

Number of Sides _____

Number of Vertices _____

3.



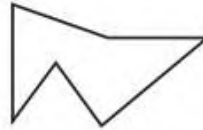
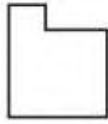
Name _____

Number of Sides _____

Number of Vertices _____



4.

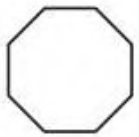


Name _____

Number of Sides _____

Number of Vertices _____

5.



Name _____

Number of Sides _____

Number of Vertices _____

6. Draw a polygon with 3 sides and 3 vertices.


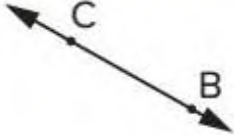
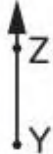

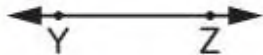

7. Draw a polygon with 4 sides and 4 vertices.

8. Draw a polygon with 5 sides and 5 vertices.

9. Draw a polygon with 6 sides and 6 vertices.



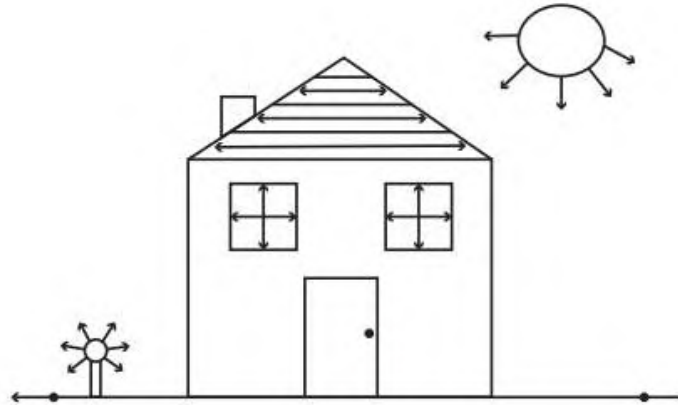
Lesson (2): Points, Lines, Line Segments, and Rays

	line YZ	\overleftrightarrow{YZ}
	line segment BC	\overline{BC}
	line BC	\overleftrightarrow{YZ}
	ray BC	\overline{BC}
	line segment YZ	\overline{BC}
	ray YZ	\overline{YZ}

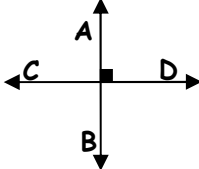
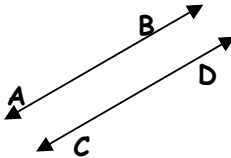
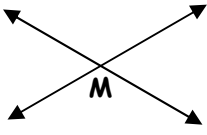





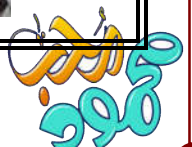
House of Rays, Line Segments, and Lines Look at the picture that follows.

- Trace any lines you see in green.
- Trace any rays you see in orange.
- Trace any line segments you see in blue.



Lesson (3): Types of Lines:

Perpendicular Lines (Orthogonal lines)	Parallel Lines	Intersecting Lines
 <ol style="list-style-type: none"> 1. Intersect at 1 point. 2. Make 4 right angles. 3. $\overline{AB} \perp \overline{CD}$ or $\overline{CD} \perp \overline{AB}$. 	 <ol style="list-style-type: none"> 1. $\overline{AB} \parallel \overline{CD}$ or $\overline{CD} \parallel \overline{AB}$. 2. Intersect at 0 points 3. Never intersecting. 	 <ol style="list-style-type: none"> 1. Intersect at 1 point. 2. M is the intersection point 3. Make 4 angles: 2 acute, 2 obtuse.
		

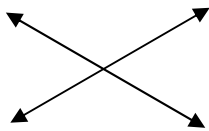


Complete:

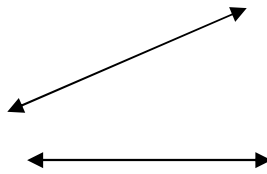
- (1) Any two lines that never intersect are called
- (2) Any two lines that intersect at a point and make four right angles are called
- (3) The two intersecting lines intersect at point (s).
- (4) The two parallel lines intersect at point (s).
- (5) The two parallel lines make angles.
- (6) Two lines, if one angle at the intersection point of them is right, then the two lines are called
- (7) Two lines, if one angle at the intersection point of them is acute, then the two lines are called



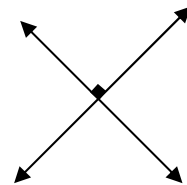
Write (parallel, perpendicular or intersecting) to describe each two straight lines:



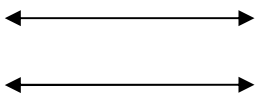
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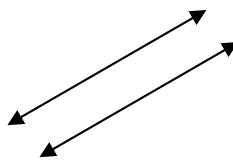
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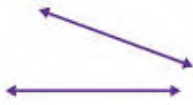


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Intersecting or Not? Look at the pairs of lines and rays in the pictures below. For each picture, extend the lines or rays see if the line segments are intersecting or parallel. Hint: Rays can only extend in one direction.

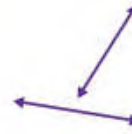
1.



2.



3.



4.



5.



6.





Writing About Math Decide whether each statement is true or false. Explain your reasoning.

1. All intersecting lines are perpendicular.

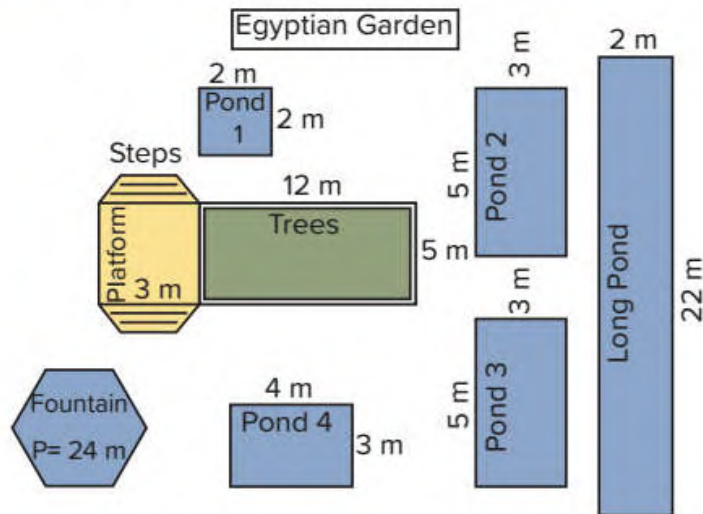
2. Two lines that never intersect must be parallel.

3. All perpendicular lines are intersecting lines.



Lesson (4): Area and Perimeter of Polygons:

Analyzing a Garden Use the drawing to answer questions about perimeter and area.

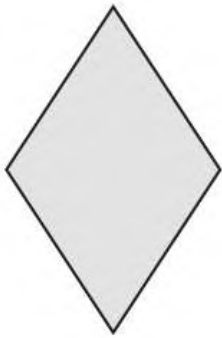


1. What is the area of Pond 1? _____
2. What is the perimeter of Pond 4? _____
3. What is the area of the center section of trees? _____
4. What is the area of the long pond? _____
5. What is the perimeter of Pond 3? _____
6. What is the perimeter of Pond 2? _____
7. The perimeter of the fountain is 24 meters. If each side is the same length, what is the length of each side? Explain how you know. _____
8. What section of the garden has an area of 12 square meters? _____
9. What is the combined perimeter of Ponds 2 and 3? _____
10. **Challenge:** What is the area of the platform? How did you find your answer?



1. Which shape is a pentagon?

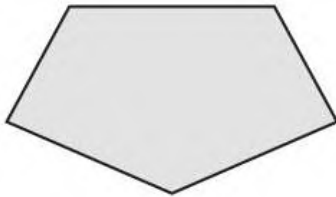
A.



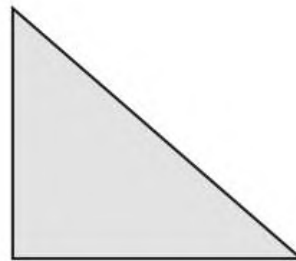
B.



C.



D.



2. What is the name of this object?



A. Point

B. Line

C. Line segment

D. Ray



3. Which of these show intersecting lines? Select *two* correct answers.

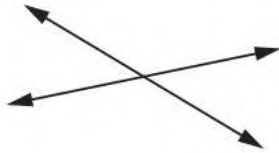
A.



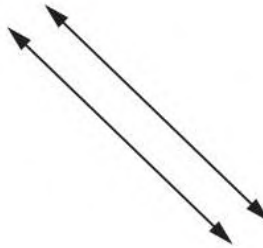
B.



C.



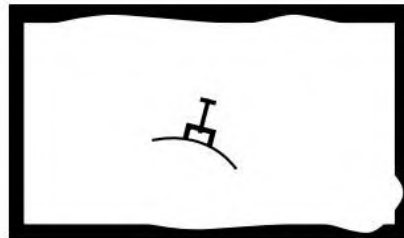
D.



E.



4. Fatma's sandbox is 3 meters wide and 5 meters long. What is the area of the sandbox?



3 meters

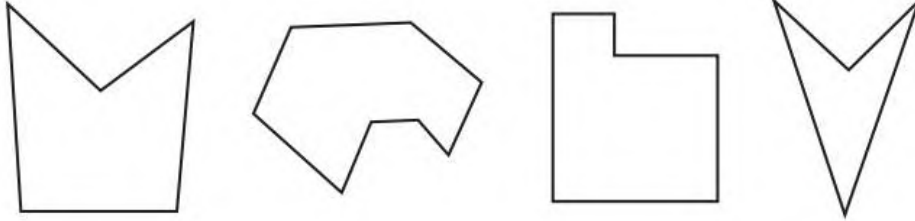
5 meters

- A. 5 square meters
- B. 8 square meters
- C. 15 square meters
- D. 16 square meters

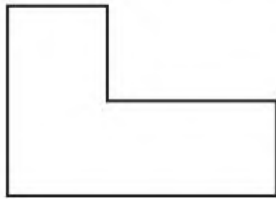


Homework

1. Circle the octagon.

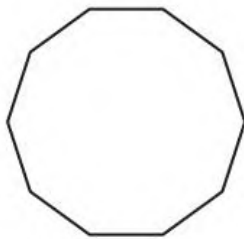


2. What shape is this?



3. True or false: A quadrilateral has 4 sides and 3 angles.

4. Record the attributes of this shape.



Sides: _____

Vertices: _____

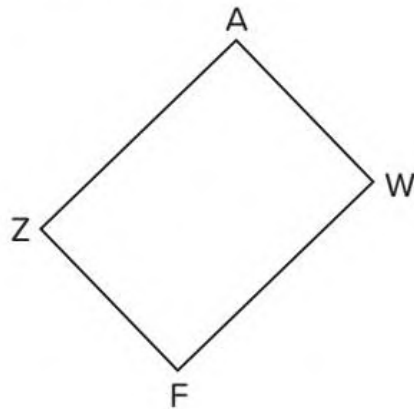
5. True or false: A polygon has the same number of sides as angles.



Draw a line to match the name to the picture. Some pictures do not have a match. Label pictures that do not have a match (for example, line segment ST or TS).



Use the shape to answer Questions 1 and 2.



1. Look at the shape. Name two perpendicular line segments.
2. Look at the shape. Name two parallel line segments.
3. Draw Line AB so that it is parallel to Line CD.
4. Draw Ray WX so that it is perpendicular to Line Segment YZ.



1. Mohamed walks around the perimeter of the park every day. The length of the park is 15 meters and the width is 12 meters. How many meters does Mohamed walk every day?
2. If you are measuring the amount of carpet you will need to cover an entire room, you are determining the _____ of the room.
3. Use a ruler to draw a rectangle that has a length of 8 centimeters and a width of 4 centimeters.
4. What is the area of the rectangle you drew?
5. What is the perimeter of the rectangle you drew?

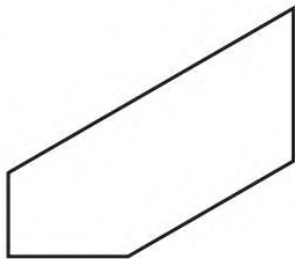


1. Aya drew a figure with the following attributes:

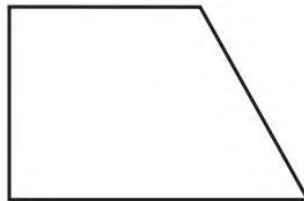
- The figure is a pentagon.
- Two pairs of sides are perpendicular.
- One pair of sides is parallel.

Which could be the figure Aya drew?

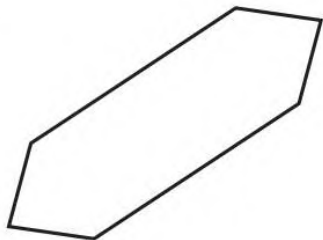
A.



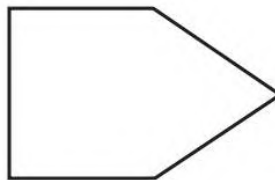
B.



C.



D.



2. Which of these are rays? Select two correct answers.

A.



B.



C.



D.



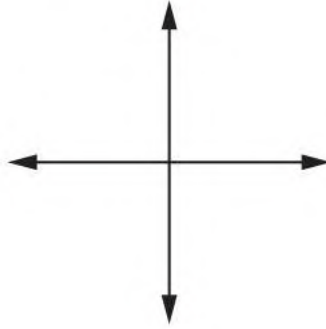
E.



F.



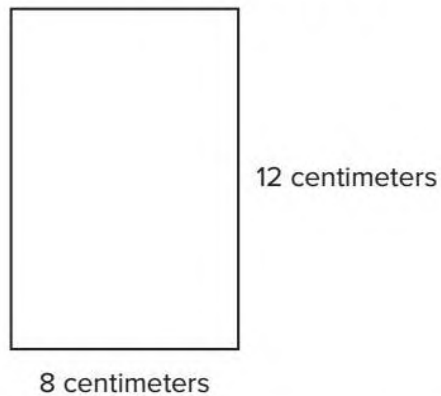
3. Which term *best* describes the lines?



- A. Line segments
- B. Unequal lines
- C. Parallel lines
- D. Perpendicular lines



4. Fill in the blanks below with the correct answer choice from each group.
Hossam uses a box with a lid that is 8 centimeters wide and 12 centimeters long. How can he find the area of the lid?



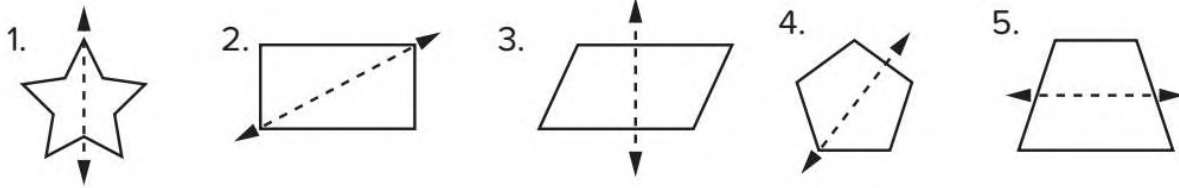
- | | |
|----|----|
| A. | 4 |
| | 8 |
| | 20 |
| | 96 |
- | | |
|----|----|
| B. | 4 |
| | 12 |
| | 40 |
| | 96 |
- | | |
|----|----|
| C. | 8 |
| | 12 |
| | 40 |
| | 96 |

He can multiply **A.** _____ by **B.** _____ to find that the area is **C.** _____ square centimeters.

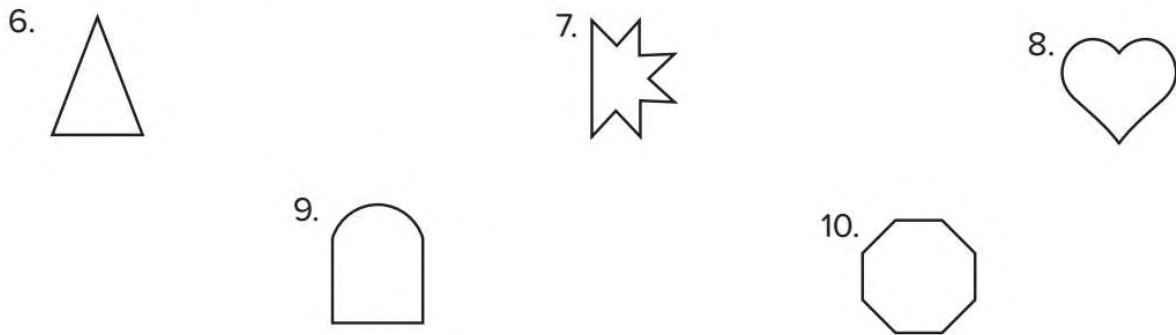


Lesson (5): What Is Symmetry?

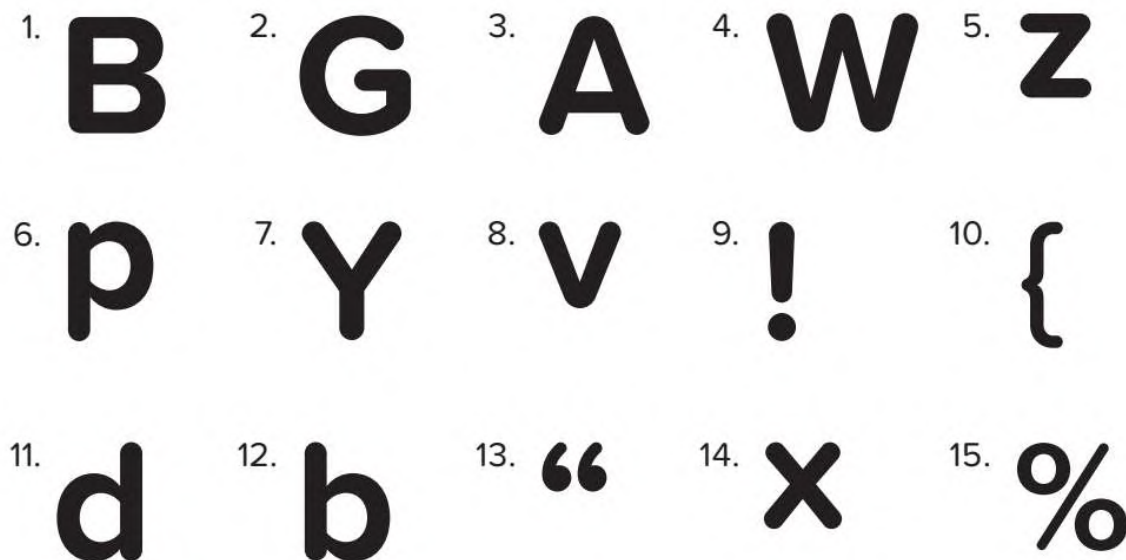
Lines of Symmetry For Problems 1–5, look at each shape. Determine if the line drawn is a line of symmetry. Circle the shapes that show a line of symmetry.



For Problems 6–10, look at each shape. Draw one line of symmetry for each one. (Hint: One shape has more than one line of symmetry.)

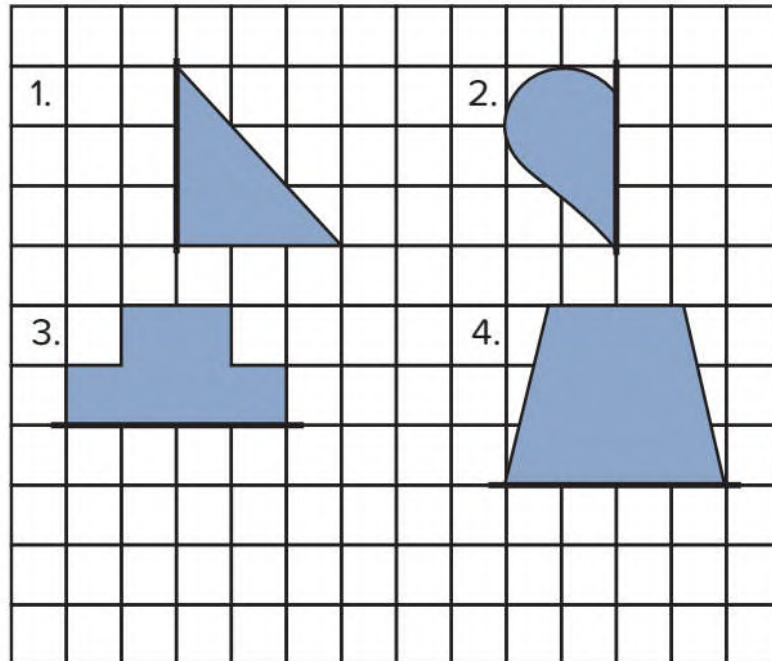


Symbol Symmetry Look at each symbol. Some of the symbols are symmetrical, but some are not. Draw lines of symmetry in the symmetrical symbols. Some symbols may have more than one line of symmetry.

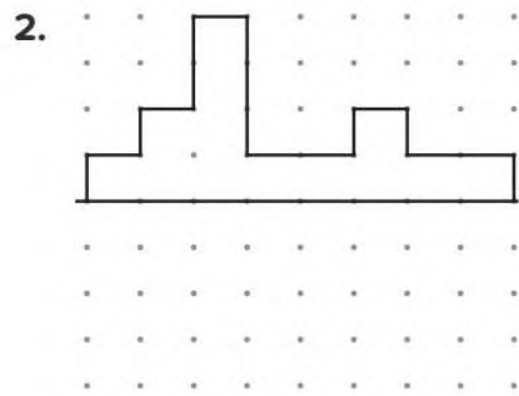
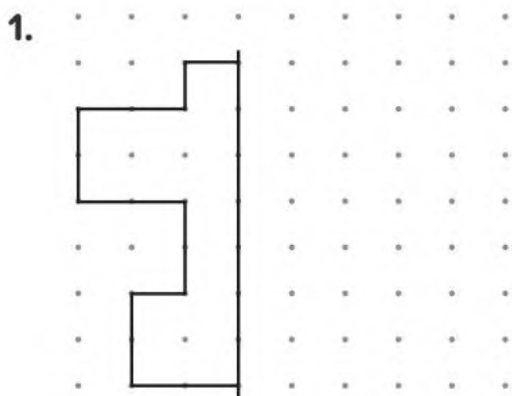


Lesson (6): Creating Symmetrical Images:

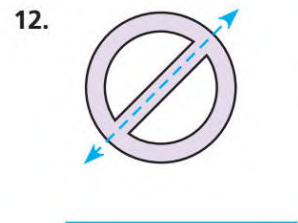
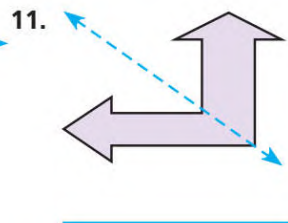
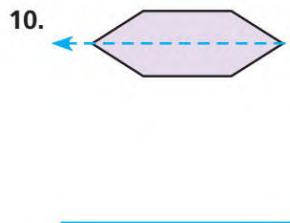
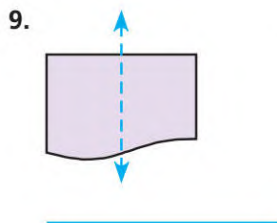
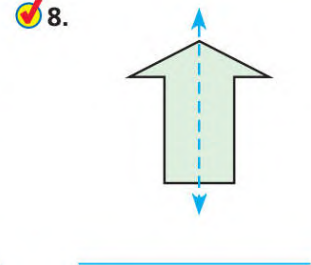
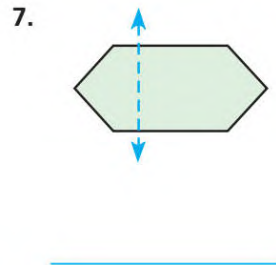
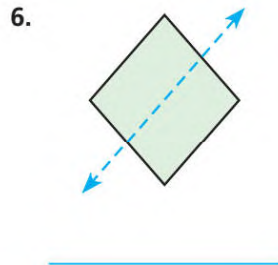
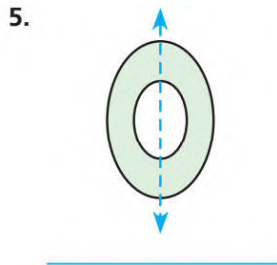
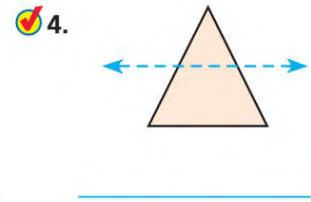
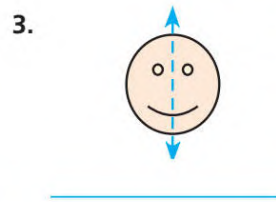
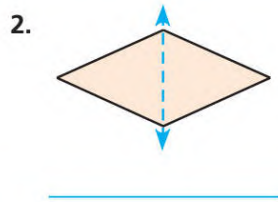
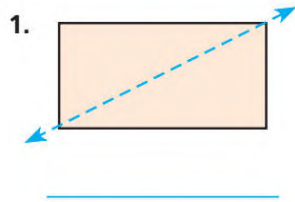
Creating Symmetrical Shapes In each picture, you can see half of the shape and the line of symmetry. Use that information to draw the rest of each shape.



You are shown half of an image and the line of symmetry. Draw the rest of the image to complete the shape.

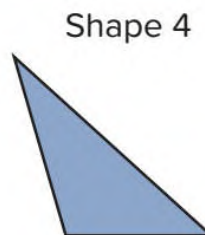
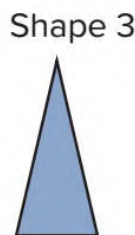
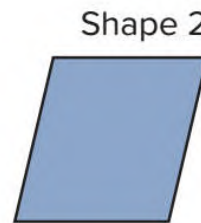
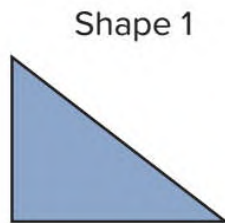


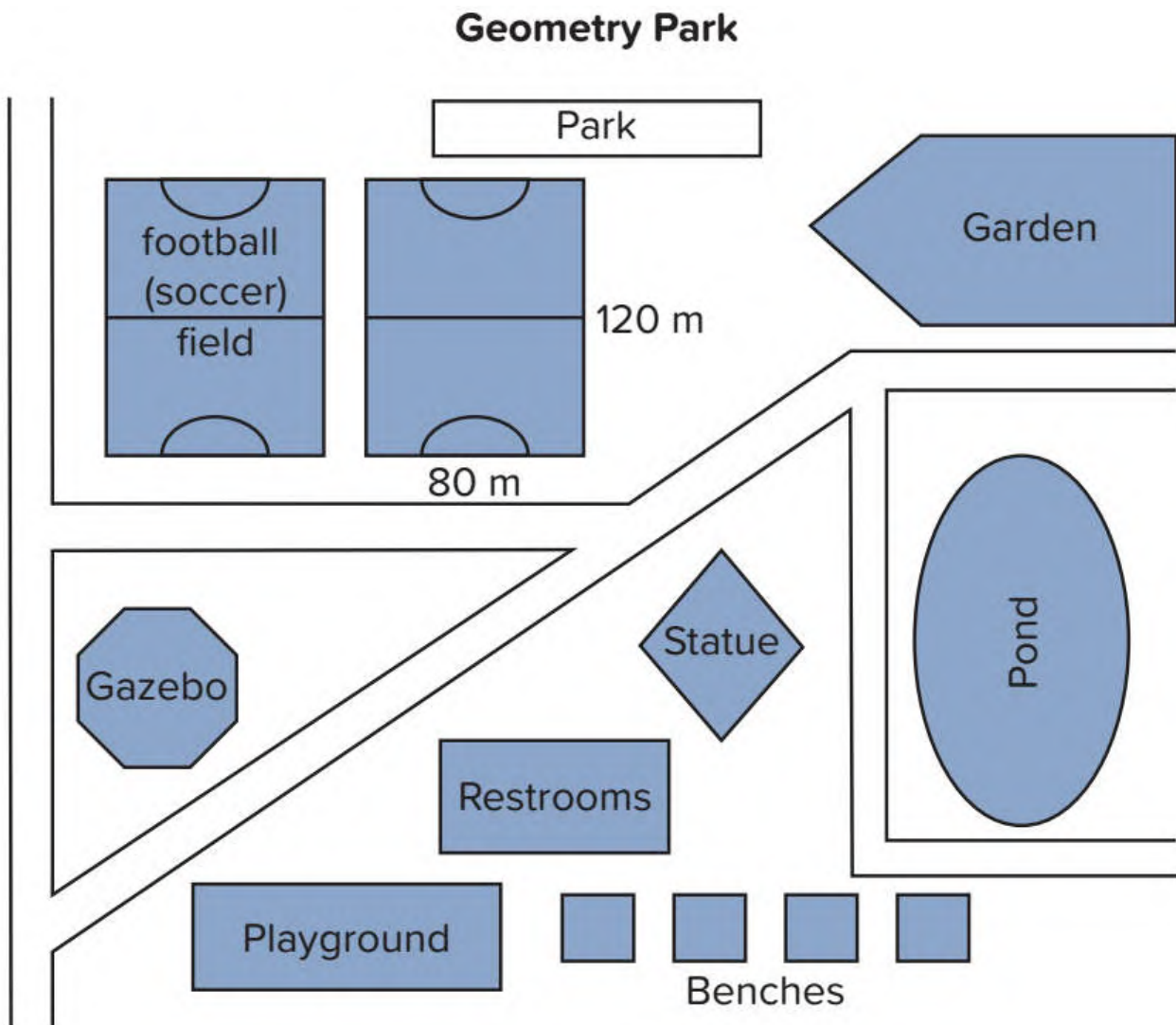
Tell whether the parts on each side of the line match. Is the line a line of symmetry? Write *yes* or *no*.



Lesson (7): Real-World Geometry, Part (1):

Which One Does Not Belong? Look at the shapes with a partner. Choose which one does not belong. Write down your explanation. (You do not have to agree with your partner.)





Geometry Park Look at the picture of the park on the following page, and then follow the directions.

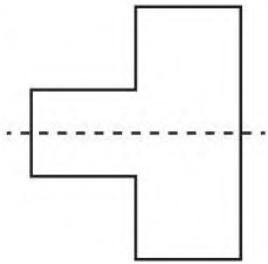
1. Color two perpendicular lines blue.
2. What shape are the restrooms?
3. Color two parallel lines green.
4. How many quadrilaterals are in the park?
5. Color two intersecting lines red.
6. Circle and label three different two-dimensional shapes.
7. Find the perimeter and area of one of the football pitches.
8. Draw at least one line of symmetry on the garden, the gazebo, and the statue.



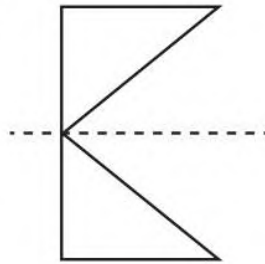
Homework

Circle the shapes that show a line of symmetry.

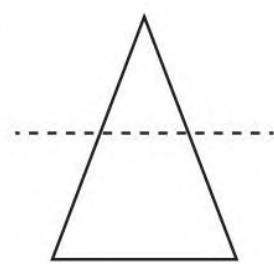
1.



2.

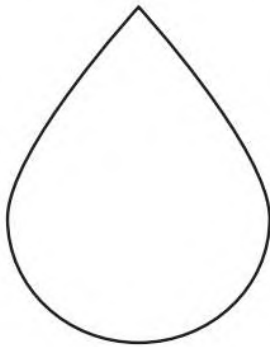


3.

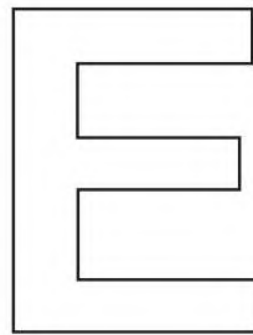


Draw a line of symmetry for each shape.

4.

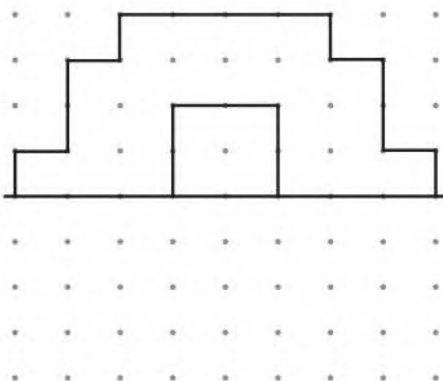


5.

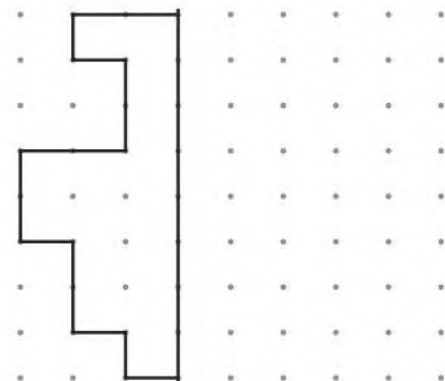


You are shown half of an image and the line of symmetry. Draw the rest of the image to complete the shape.

3.



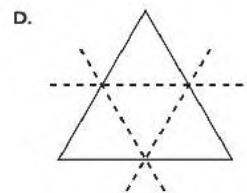
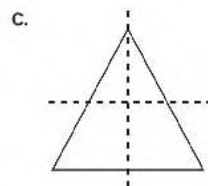
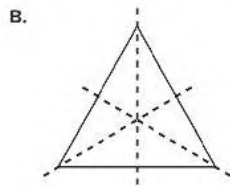
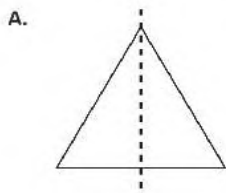
4.



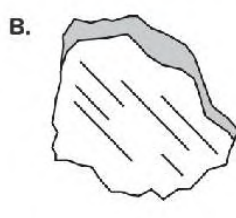
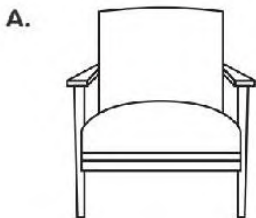
5. Is the flag of Egypt is symmetrical? Explain your thinking.



Select the answer choice that shows all the lines of symmetry in the figure.

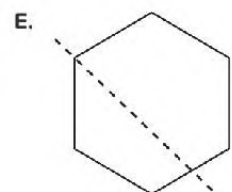
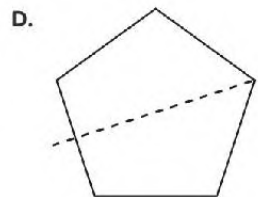
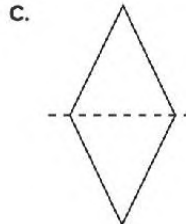
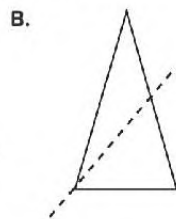
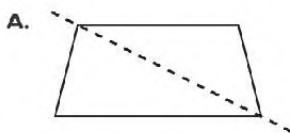


Which objects are symmetrical? Select *three* correct answers.

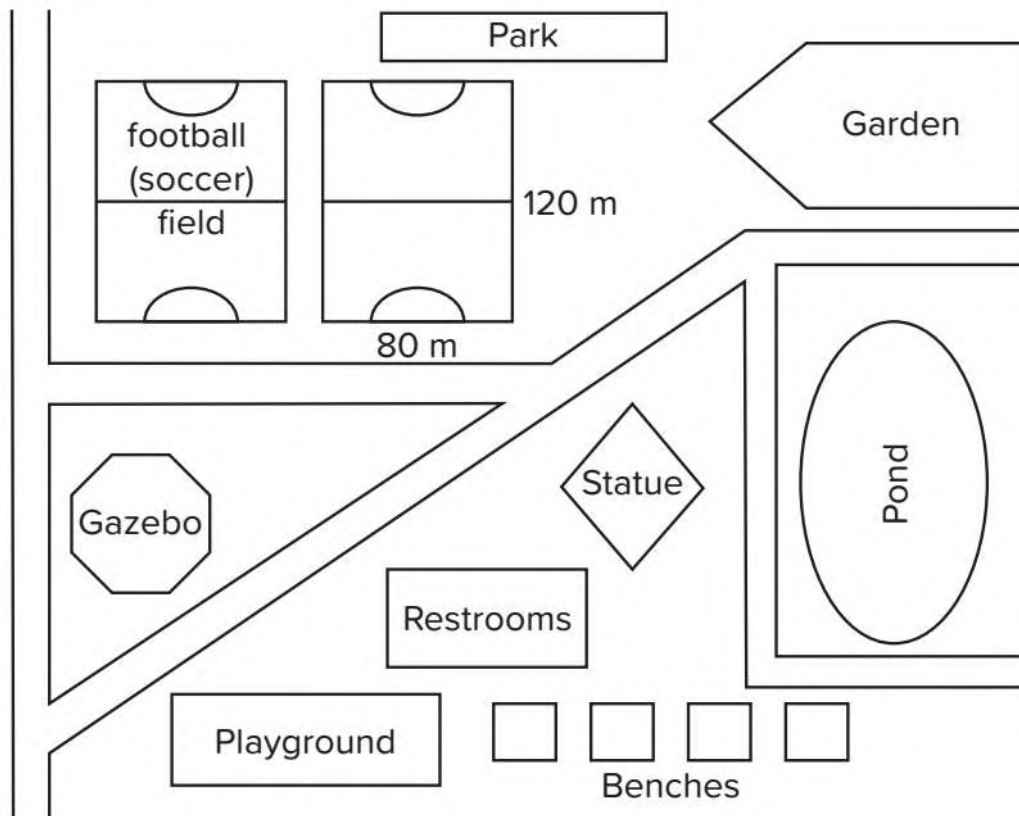


Which figures show a correct line of symmetry drawn?

Select *two* correct answers.



Use the picture of Geometry Park to answer the questions that follow.



- The length of the playground is 18 meters and the width is 10 meters. What is the perimeter of the playground?
- How would you describe the paths around the pond?
Circle all that apply:
parallel intersecting perpendicular
- What is the shape of the gazebo?



Fill in the blanks below with the correct answer choice from each group.

Is this object symmetrical? Explain.



A.

symmetrical
not symmetrical

B.

diagonal
vertical
horizontal

C.

match exactly
never overlap

The fork is **A.** _____ because the figure can be folded along

a **B.** _____ line and the two pieces will

C. _____.



Concept (2)

Classifying Shapes in New Ways

Lesson (8): Identifying Right Angles:

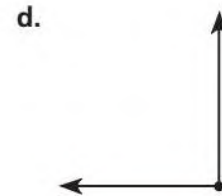
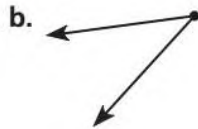
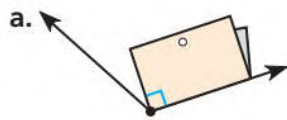
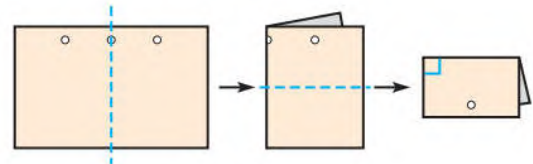
 **Activity:** Classify an angle.

Materials ■ paper

To classify an angle, you can compare it to a right angle.

Make a right angle by using a sheet of paper. Fold the paper twice evenly to model a right angle. Use the right angle to classify the angles below.

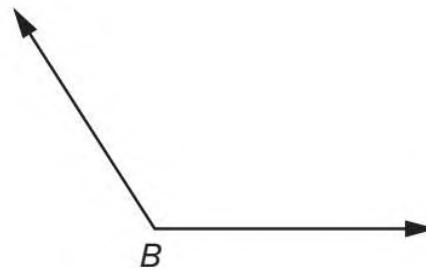
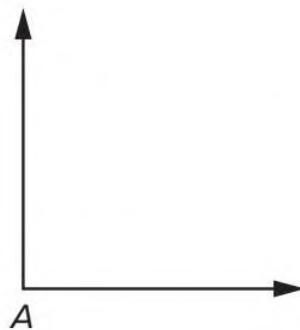
Write *acute*, *obtuse*, *right*, or *straight*.





Fill in the blank below with the correct answer choice.

Angle *A* is a right angle. Is angle *B* greater than, equal to, or less than a right angle?



Angle *B* is _____ a right angle.

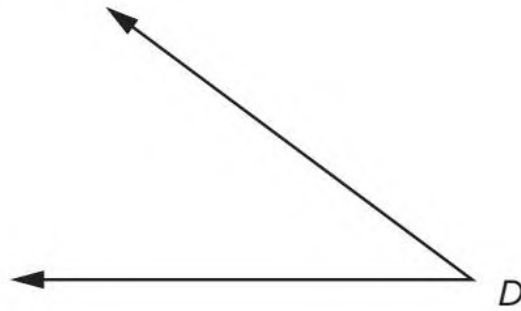
greater than

equal to

less than



Fill in the blank below with the correct answer choice.
What type of angle is angle D ?



Angle D is a(an) _____ angle.

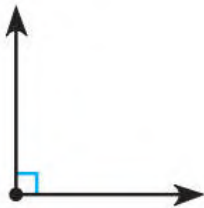
right

obtuse

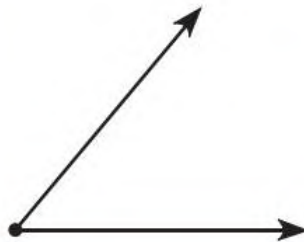
acute

Lesson (9): Classifying Angles:

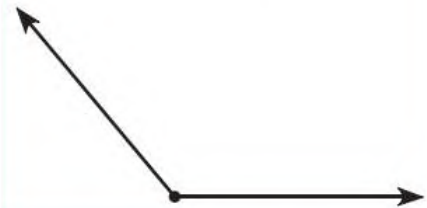
A **right angle** forms a square corner.



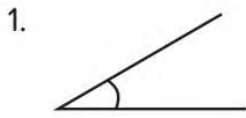
An **acute angle** is less than a right angle.

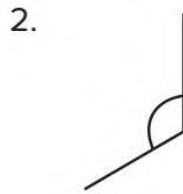


An **obtuse angle** is greater than a right angle and less than a straight angle.

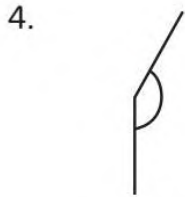


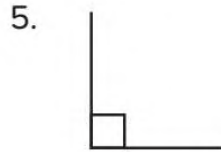
Comparing Angles Look at the angles. Write whether each angle is larger than, smaller than, or equal to a right angle.

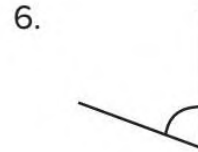








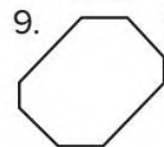
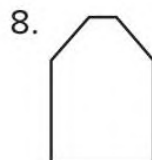
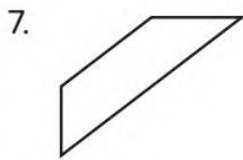
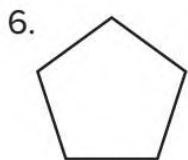
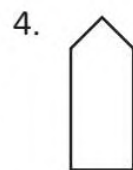
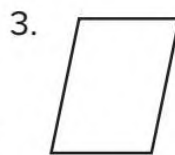
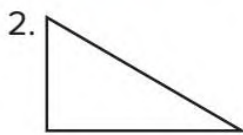
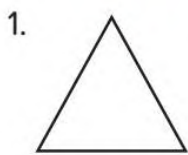
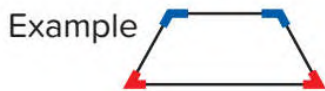






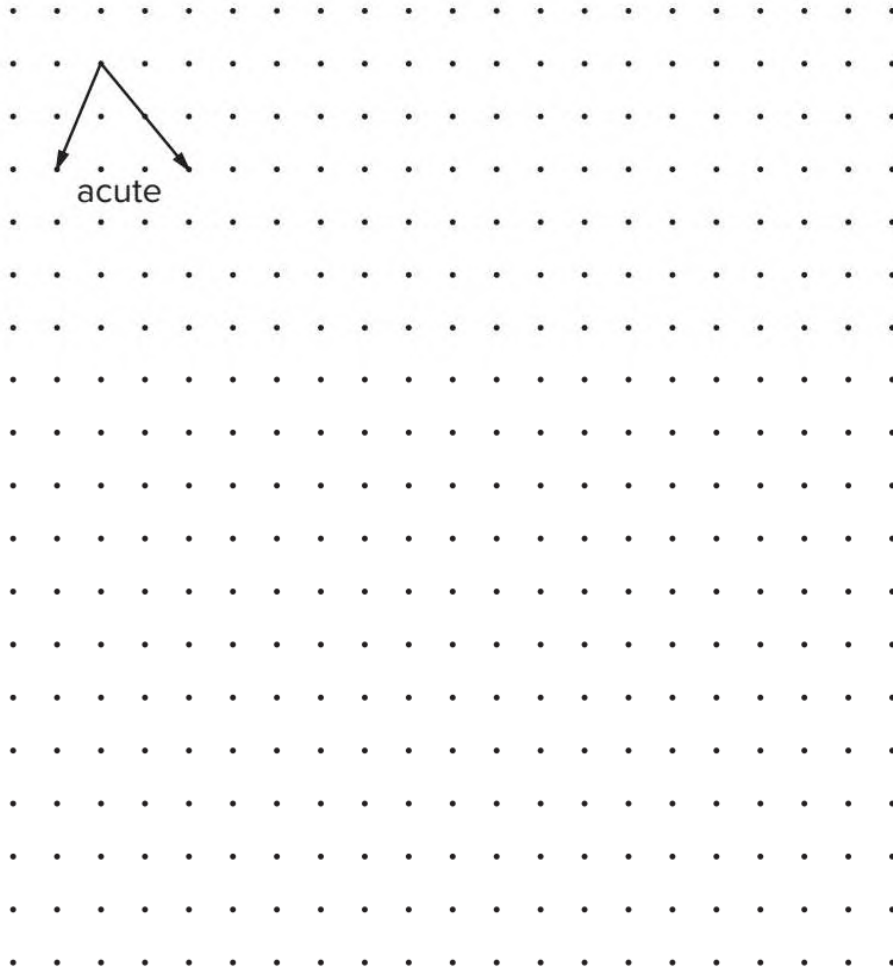
Lesson (10): Drawing Angles:

Types of Angles Color acute angles red, right angles yellow, and obtuse angles blue. Use your index card to prove what type of angle is shown. An example is shown.



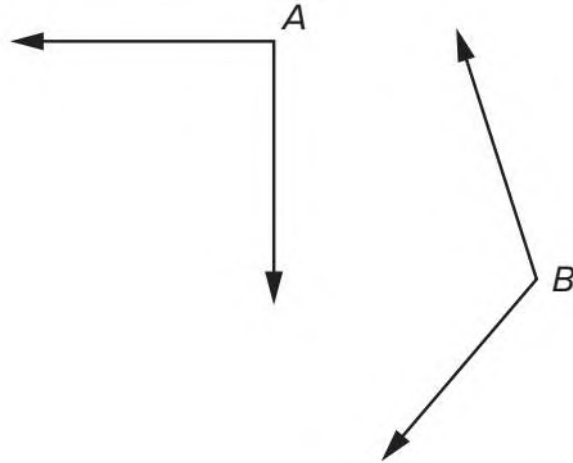
Drawing Angles Use a ruler to connect the dots to draw and label the following in the grid.

- 3 acute angles
- 3 right angles
- 3 obtuse angles
- A right angle and an obtuse angle that share an endpoint
- Two acute angles that share an endpoint



Homework

Fill in the blanks below with the correct answer choice from each group.
Angle A is a right angle. Is angle B greater than, equal to, or less than a right angle?



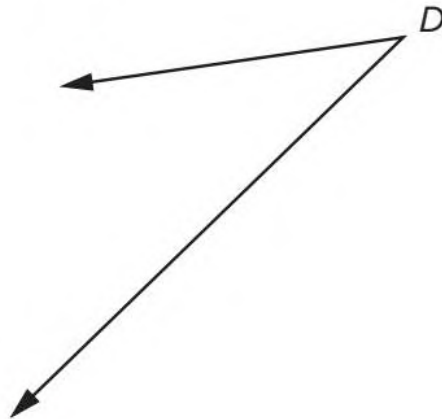
greater than
equal to
less than

Angle B is _____ a right angle.

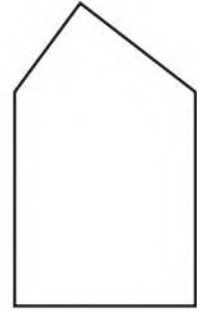
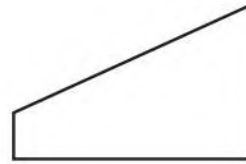
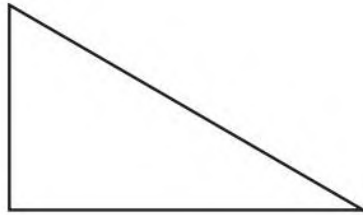
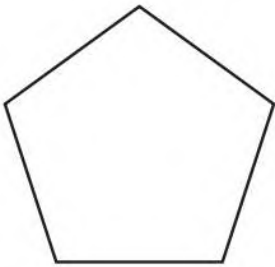


What type of angle is angle D ?

- A. acute
- B. right
- C. obtuse
- D. straight



Circle the shapes that contain acute angles.



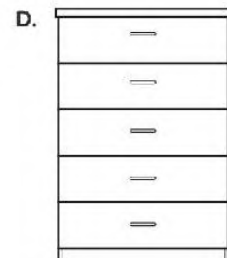
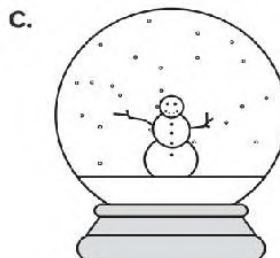
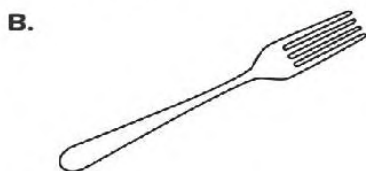
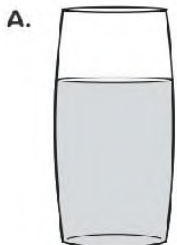
Shorouk planted a garden in the shape of a rectangle. How many right angles are in Shorouk's garden?



Draw a quadrilateral with at least two right angles. Label the angles.

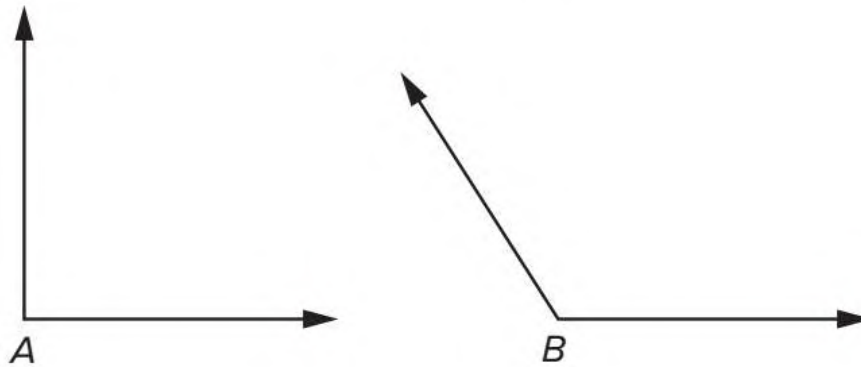


Which object has a right angle?



Fill in the blank below with the correct answer choice.

Angle A is a right angle. Is angle B greater than, equal to, or less than a right angle?



Angle B is _____ a right angle.

greater than

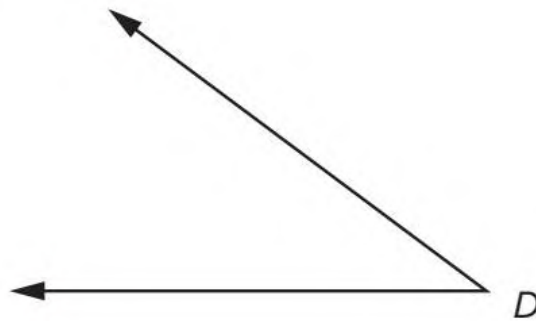
equal to

less than



Fill in the blank below with the correct answer choice.

What type of angle is angle D ?



Angle D is a(an) _____ angle.

right

obtuse

acute



1. Draw and label \overline{AB} in the space at the right.

\overline{AB} is a _____.

Draw and label an example of the figure.

2. \overleftrightarrow{XY}

3. obtuse $\angle K$

4. right $\angle CDE$

Use Figure M for 5 and 6.

5. Name a line segment.

6. Name a right angle.

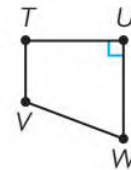


Figure M



Draw and label an example of the figure.

7. \overrightarrow{PQ}

8. acute $\angle RST$

9. straight $\angle WXZ$

10. Name a ray.

11. Name an obtuse angle.

12. Name a line.

13. Name a line segment.

14. Name a right angle.

15. Name an acute angle.

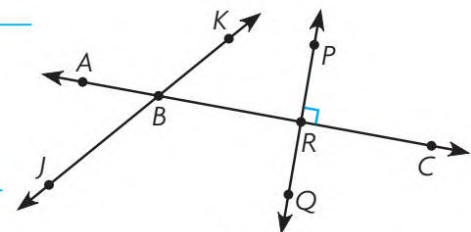
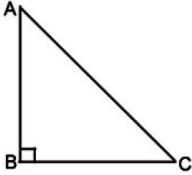
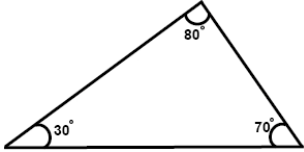
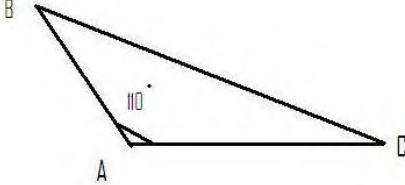


Figure F

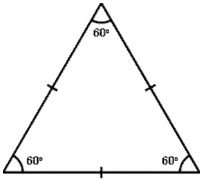
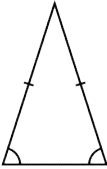
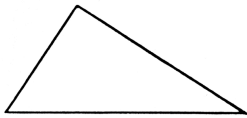


Lesson (11): Classifying Triangles:

Identifying the type of the triangle according to the measures of its angles

Right-angled triangle	Acute-angled triangle	Obtuse-angled triangle
		
<ul style="list-style-type: none"> It has only one right angle and two acute angles. 	<ul style="list-style-type: none"> It has three acute angles. 	<ul style="list-style-type: none"> It has only one obtuse angle and two acute angles.

Identifying the type of the triangle according to the length of its sides

Equilateral triangle	Isosceles triangle	Scalene triangle
		
<ul style="list-style-type: none"> The three sides are equal in length. 	<ul style="list-style-type: none"> Two sides only are equal in length. 	<ul style="list-style-type: none"> The three sides are different in length.

Note: The sum of the measures of the interior angles of any triangle = 180° .

Remarks

- (1) Any triangle has at least two acute angles.
- (2) We can't find two right angles in one triangle.
- (3) We can't find two obtuse angles in one triangle.



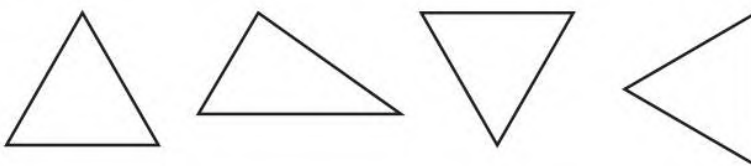
Triangle Challenge Work with a partner to use a ruler and your index card to draw the triangles described. Is it possible to draw them all?

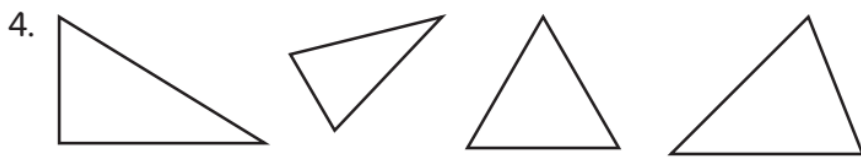
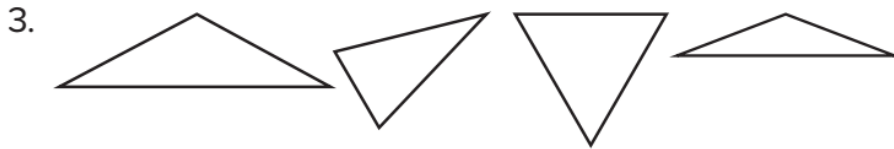
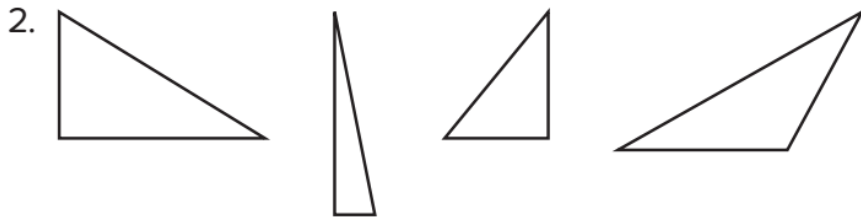
1. A triangle with three acute angles
2. A triangle with one right angle and two acute angles
3. A triangle with one obtuse angle and two acute angles
4. A triangle with two right angles and one acute angle



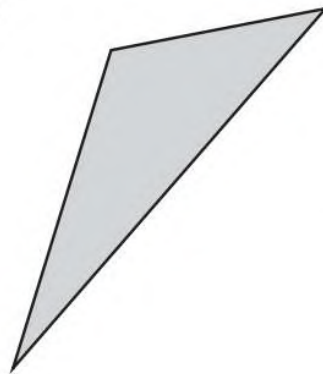
Odd One Out Look carefully at the sides and angles in each triangle. Circle the triangle that does not belong in each group. Use mathematical vocabulary to explain your reasoning.

1.





What type of triangle is shown?



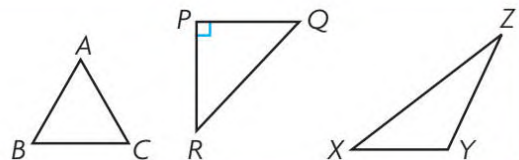
- A. Right triangle
- B. Acute triangle
- C. Obtuse triangle
- D. Equiangular triangle



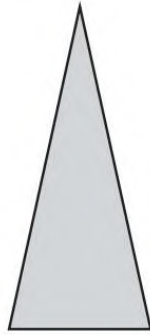
a. Name the triangle with one right angle. _____

b. Name the triangle with one obtuse angle. _____

c. Name the triangle with three acute angles. _____



Fill in the blanks below with the correct answer choice from each group.
What type of triangle is shown? Explain how you know.



A.

scalene
isosceles
equilateral

B.

0
3
2

The triangle is **A.** _____ because it has

B. _____ sides that are the same length.



Lesson (12): Drawing Triangles:

Building Triangles Work with your partner to use straws to create the triangles.
Draw your triangles in the space provided.

1. Build an equilateral triangle.
2. Build a triangle with all acute angles.



3. Build a triangle with an obtuse angle.

4. Build a scalene triangle.

5. Build a right triangle.

6. Build an isosceles triangle.

7. Build an isosceles triangle with a right angle.

8. Build a scalene triangle with an obtuse angle.

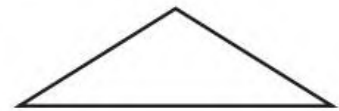
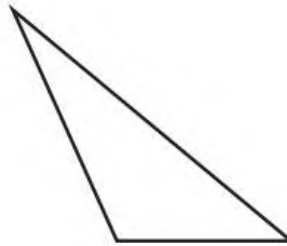
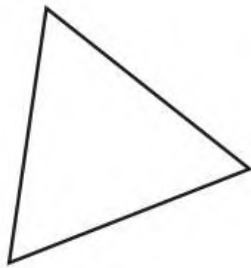


Homework

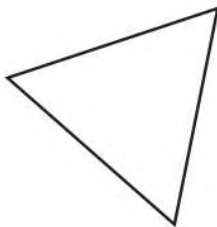
1. True or false: An isosceles triangle only has two sides that are the same length.



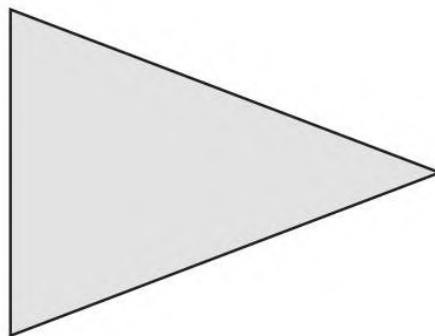
2. Circle the scalene triangle.



3. Is this an equilateral triangle? Why or why not?



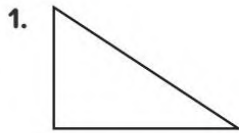
What type of triangle is shown?



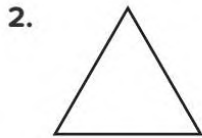
- A. equilateral
- B. isosceles
- C. right
- D. scalene



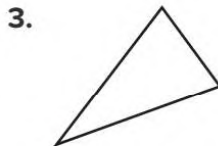
Match each triangle with its name.



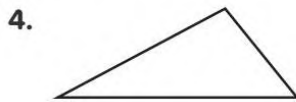
a. isosceles triangle



b. equilateral triangle



c. scalene triangle



d. right triangle

5. Draw an acute triangle. Circle any acute angles.

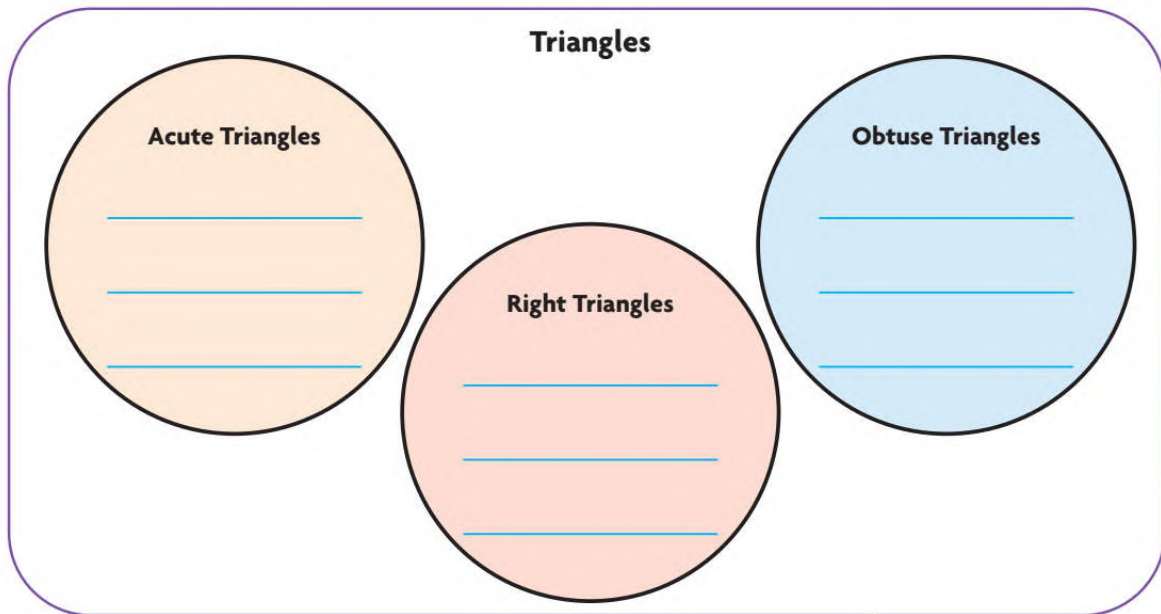
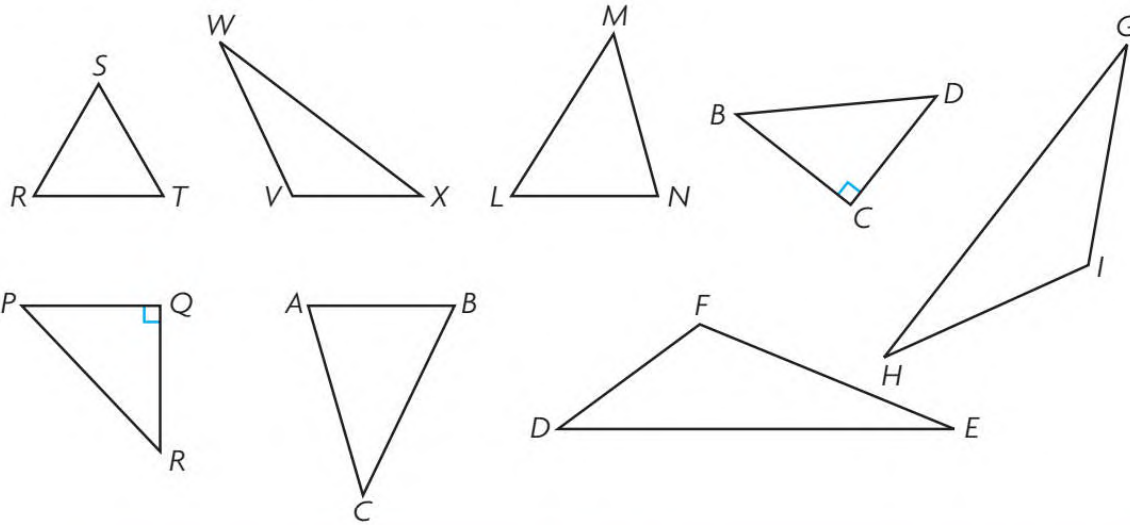
6. Draw an isosceles triangle with an obtuse angle. Circle any obtuse angles.

7. Draw a scalene triangle with an obtuse angle. Circle any obtuse angles.



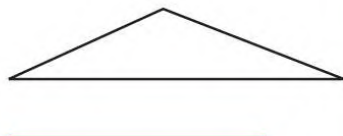
Use a Venn diagram to classify triangles.

Write the names of the triangles in the Venn diagram.

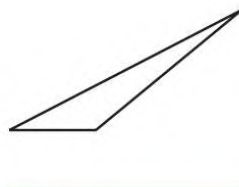


Classify each triangle. Write *acute*, *right*, or *obtuse*.

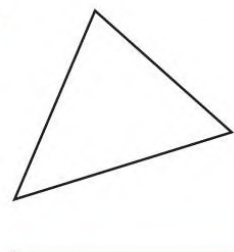
2.



3.

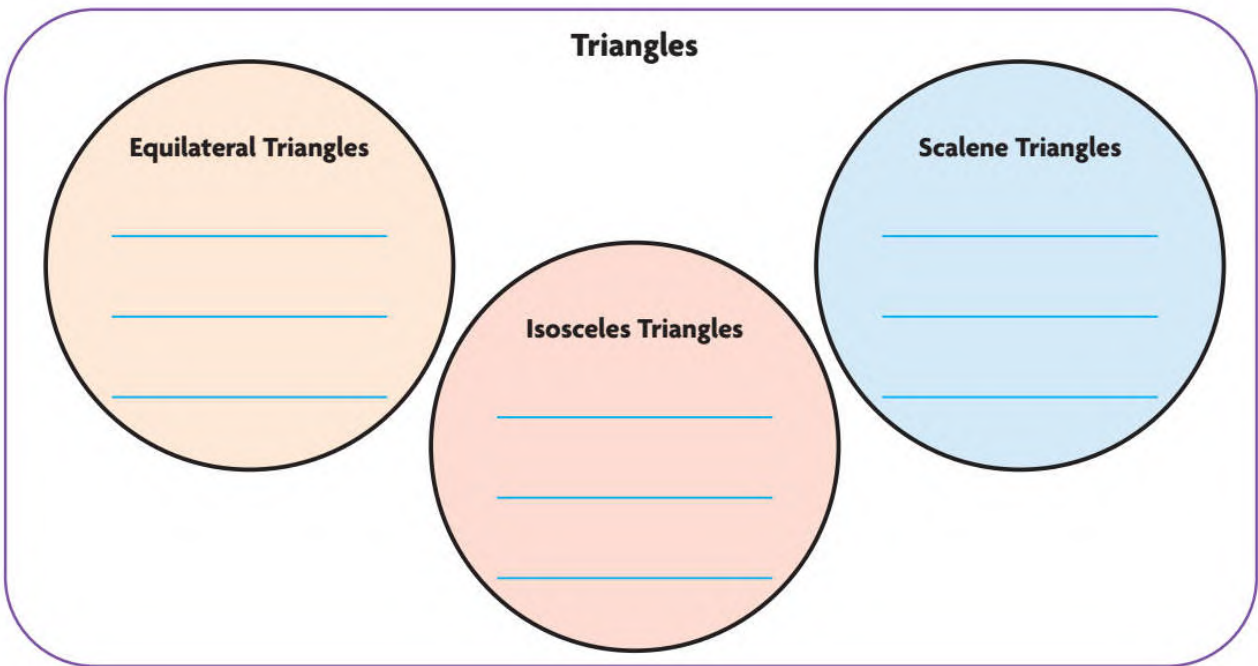
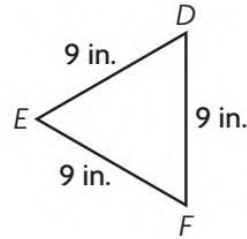
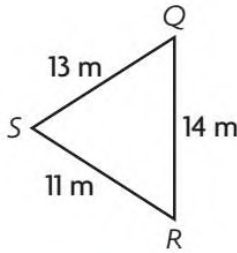
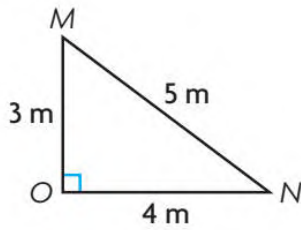
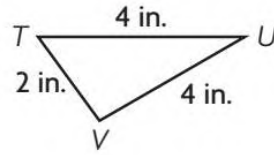
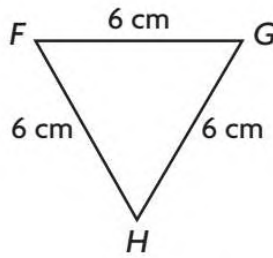
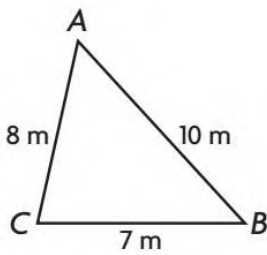


4.



Use a Venn diagram to classify triangles.

Write the names of the triangles in the Venn diagram



Classify each triangle. Write *acute*, *right*, or *obtuse*.

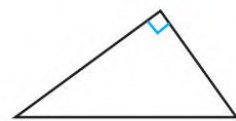
5.



6.

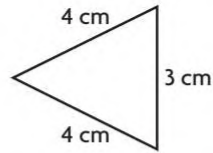


7.



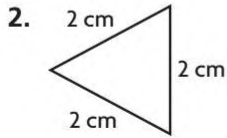


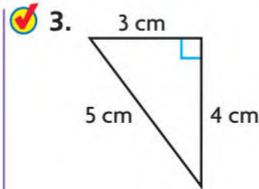
1. Name the triangle at the right.
Write *equilateral*, *isosceles*, or *scalene*.

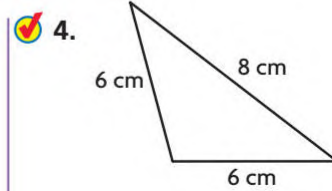


Think: How many equal sides does the triangle have?

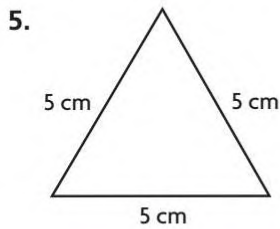
Name the triangle. Write *equilateral*, *isosceles*, or *scalene*.

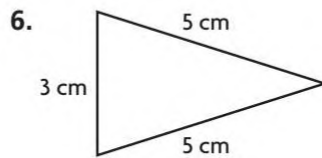


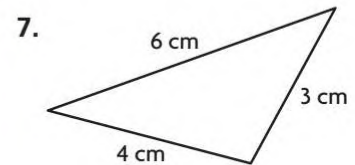




Name the triangle. Write *equilateral*, *isosceles*, or *scalene*.









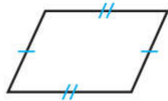
Lesson (13): Classifying Quadrilaterals:

Common Quadrilaterals



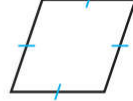
Trapezoid

- 1 pair of parallel sides



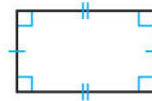
Parallelogram

- 2 pairs of parallel sides
- 2 pairs of sides of equal length



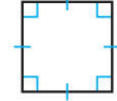
Rhombus

- 2 pairs of parallel sides
- 4 sides of equal length



Rectangle

- 2 pairs of parallel sides
- 2 pairs of sides of equal length
- 4 right angles



Square

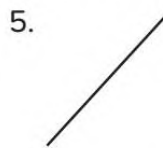
- 2 pairs of parallel sides
- 4 sides of equal length
- 4 right angles



Draw lines to make pairs of parallel lines.



Draw lines to make pairs of intersecting lines.

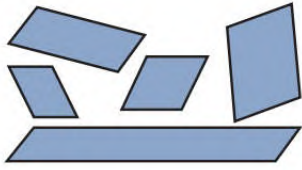


Draw lines to make pairs of perpendicular lines.



Naming Quadrilaterals Write the name of each quadrilateral. Count how many pairs of parallel sides the shape has and classify the angles. Draw at least one example of each quadrilateral using the dot grid.

1.



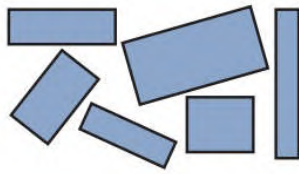
Name: _____

Parallel Sides: _____

Angles: _____



2.



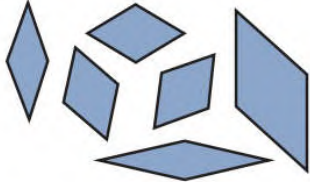
Name: _____

Parallel Sides: _____

Angles: _____



3.

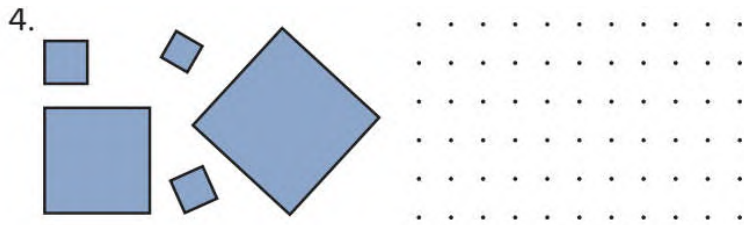


Name: _____

Parallel Sides: _____

Angles: _____

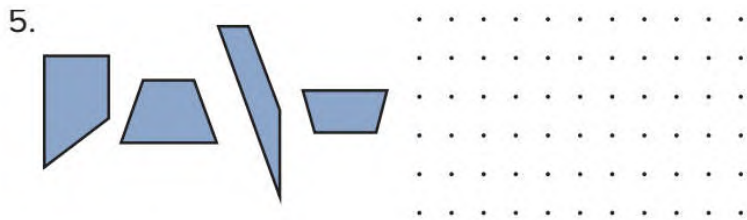




Name: _____

Parallel Sides: _____

Angles: _____



Name: _____

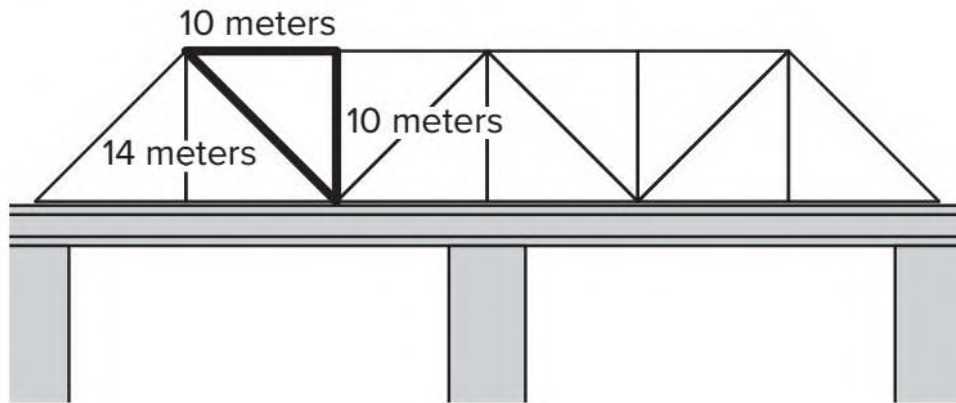
Parallel Sides: _____

Angles: _____



Lesson (13): Real-World Geometry, Part 2:

A bridge engineer is designing a new bridge. The beams of the bridge will be in the shape of isosceles right triangles. Which of these are true about the triangles on the bridge?



- A. The perimeter of each triangle is 24 meters.
- B. The three angles of each triangle are exactly the same.
- C. Each triangle has three lines of symmetry.
- D. Two sides of each triangle are the same.



1. What type of triangle is this sign?



Use the picture to answer the following questions.



2. Circle a parallelogram you see in the picture.
3. Circle a triangle you see in the picture.
4. Shade 3 rectangles you see in the picture.



Unit (12) Assessment

[1] Choose the correct answer:

1. The opposite figure is named as _____

A. \overrightarrow{AB} B. \overline{AB} C. \overleftarrow{BA} D. \overleftarrow{AB} 

2. A _____ is part of a line. It has two endpoints.

A. point

B. line

C. line segment

D. ray

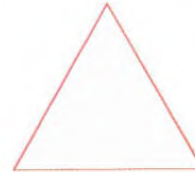
3. The classification of the opposite triangle, is _____

A. isosceles, obtuse

B. isosceles, acute

C. equilateral, acute

D. scalene, acute



4. A _____ is a parallelogram with all sides are the same length.

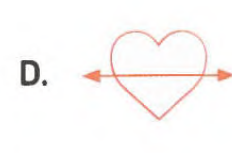
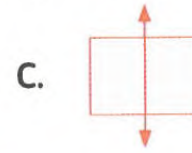
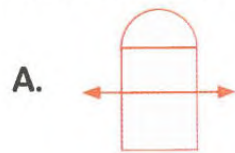
A. parallelogram

B. rectangle

C. trapezium

D. rhombus

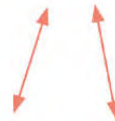
5. Which of the following figures shows a line of symmetry?



6. The opposite lines show _____

A. parallel lines

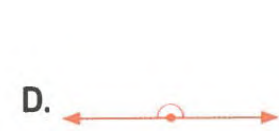
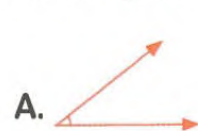
C. perpendicular lines



B. intersecting lines

D. not intersecting lines

7. Which figure shows a right angle?



[2] Complete:

1. is named as _____

2. _____ is formed by two rays that have the same endpoint.

3. The _____ angle is smaller than a right angle.





4. The _____ triangle has only two equal sides.

5. A _____ is a rectangle with all sides are equal in length.

6. The _____ triangle has three equal sides.

7. The square has _____ right angles.
8. The right triangle has _____ right angle and 2 acute angles.

[3] Choose the correct answer:

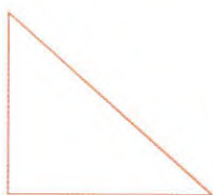
1. A _____ has a vary measuring angles with only one pair of parallel sides.
- A. parallelogram B. rhombus C. square D. trapezium
2. Which of the following figures shows \overleftrightarrow{CD} ?
- A.  B.  C.  D. 
3. The equilateral triangle has _____ equal sides.
- A. 0 B. 1 C. 2 D. 3
4. The opposite two lines are _____
- A. parallel B. not intersecting C. perpendicular D. intersecting and not perpendicular
5. The number of the right angles in the opposite figure is _____
- A. 1 B. 2 C. 3 D. 4
6. The number of equal sides in the scalene acute triangle is _____.
- A. 0 B. 1 C. 2 D. 3
7. A parallelogram has _____
- A. 4 equal sides B. 4 right angles
C. 1 pair of parallel sides D. 2 pairs of parallel sides

[4] Answer the following:

1. Hany is making a design using a quadrilateral that has four equal sides and four same-sized angles. What shape is Hany using ? Draw the design.

2. Classify the following triangles according to their sides and their angles.

a.



b.

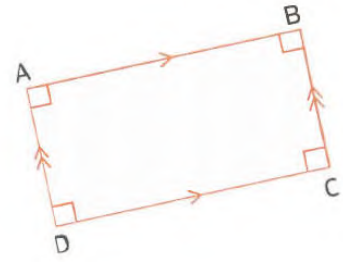


c.



3. In the opposite diagram,
identify :

- a pair of parallel line segments.
- a pair of perpendicular line segments.

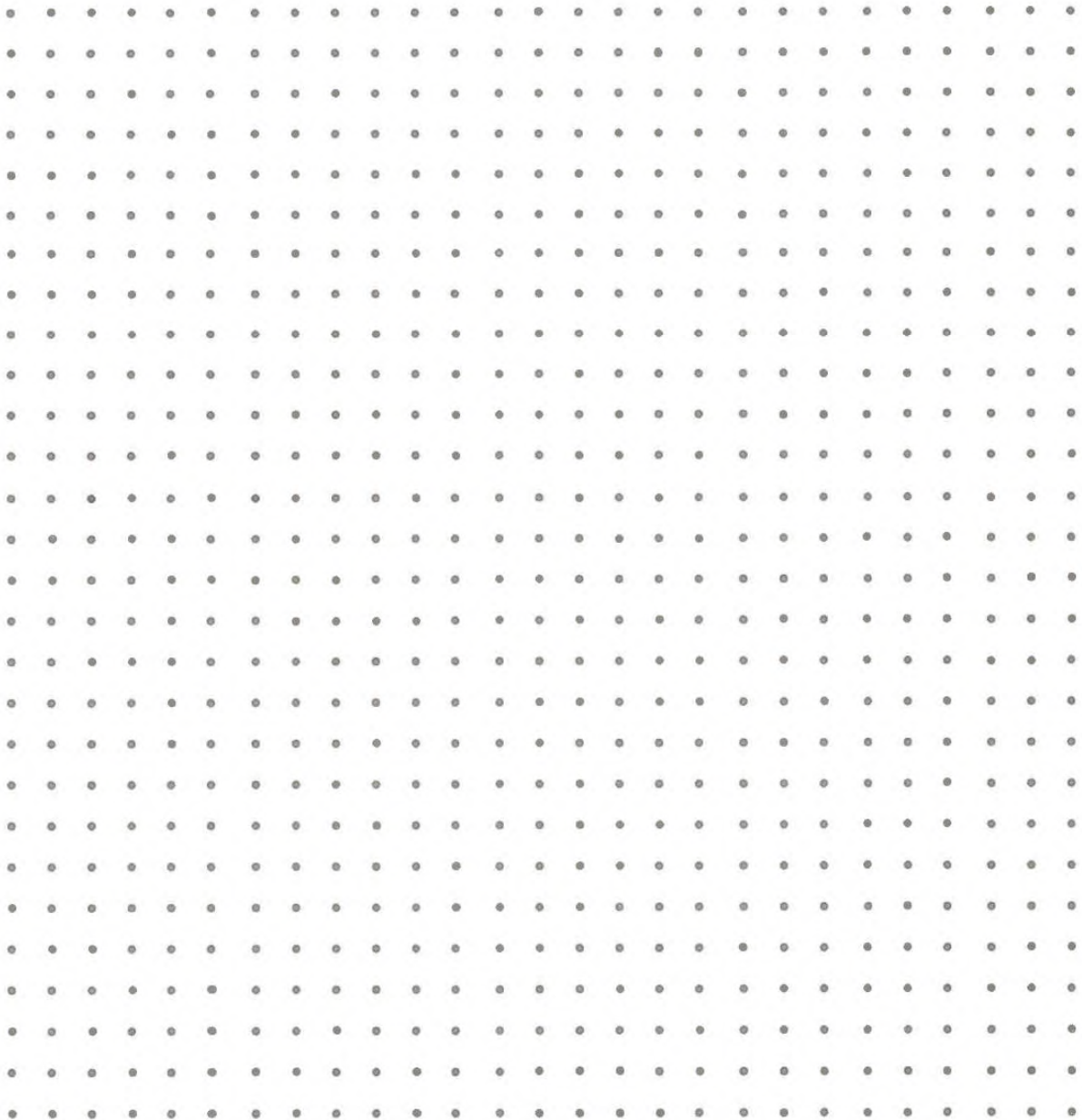


4. Use your ruler to connect the dots to draw.

a. A right angle

b. An acute angle

c. A square





UNIT

13

Theme 4 | Applications of Geometry
and Measurement

Unit 13 Angles of a Circle



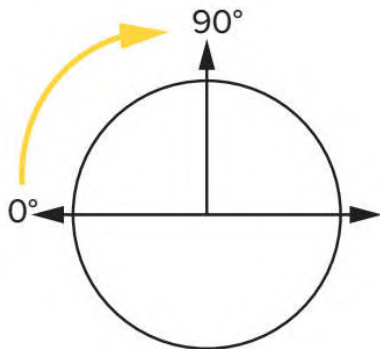
Concept (1)

Foundations of Angle Measurement

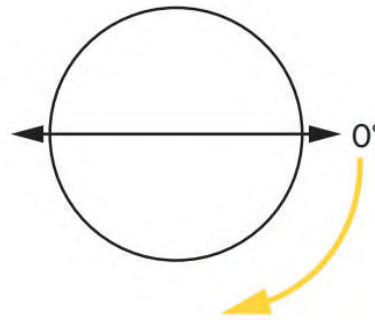
Lesson (1): Understanding Degrees:

Circles and Angles Move from 0° in the given direction and draw a right angle. Then, label 90° and 180° degrees on each circle. Compare your work with your Shoulder Partner's work.

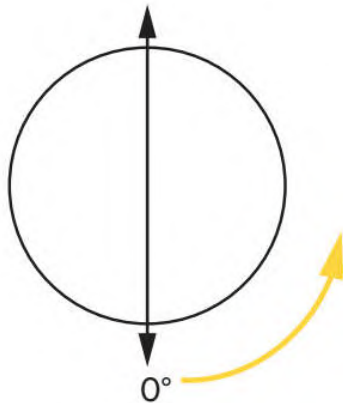
1. Label 180° .



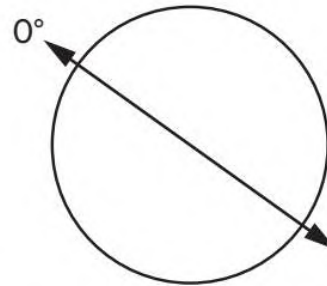
2. Move clockwise from 0° .



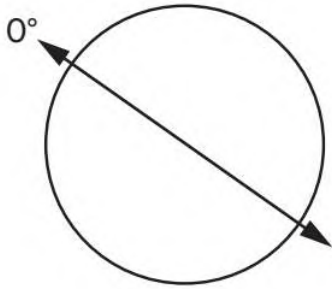
3. Move counterclockwise from 0° .



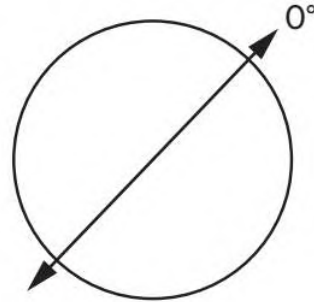
4. Move clockwise from 0° .



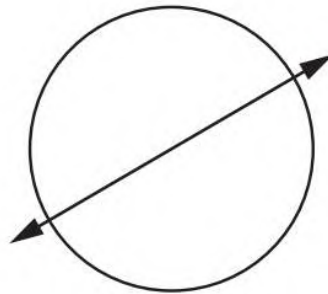
5. Move counterclockwise from 0° .



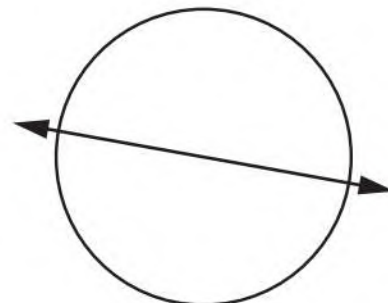
6. Move clockwise from 0° .



1. Draw an acute angle. An acute angle measures between _____ and _____ degrees.

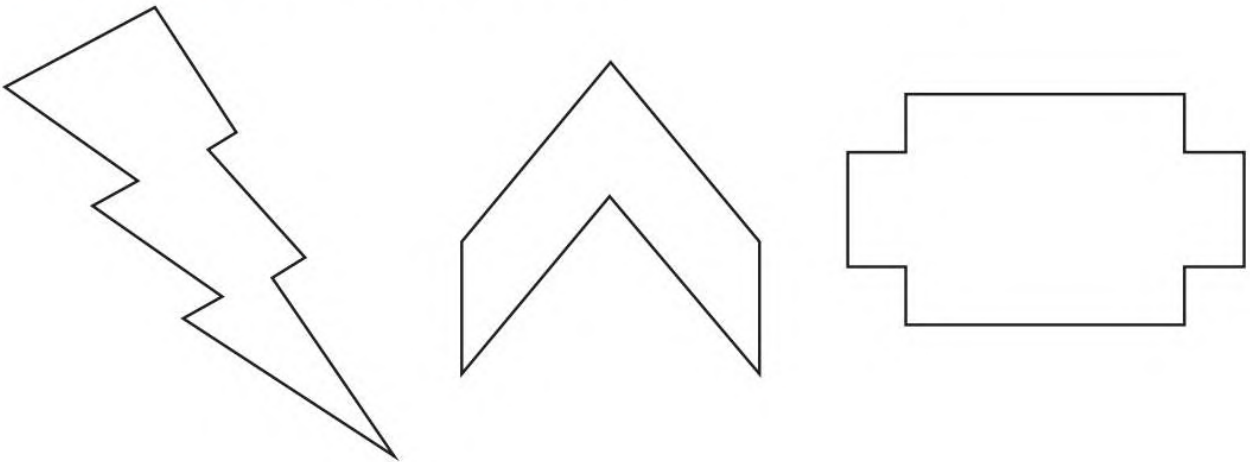


2. Draw an obtuse angle. An obtuse angle measures between _____ and _____ degrees.

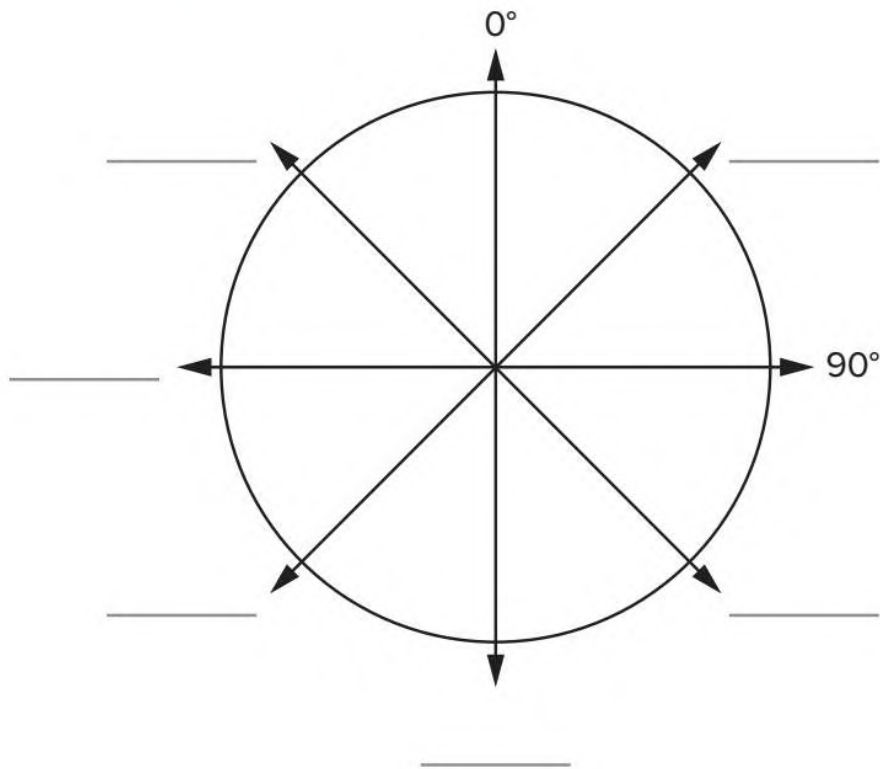


Lesson (2): Exploring Circle and Angle Relationship:

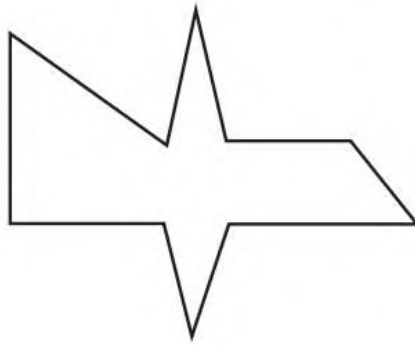
Types of Angles Circle the right angles. Mark an x on acute angles. Draw a star on obtuse angles. Can you classify them all?



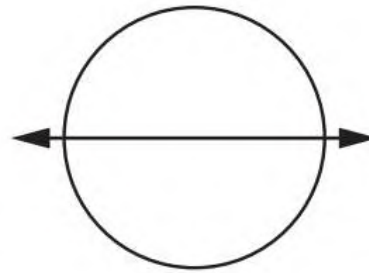
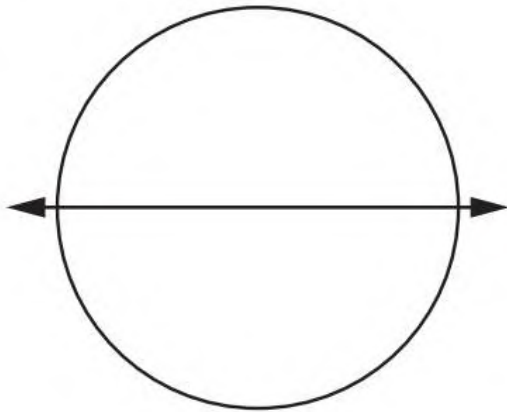
Benchmark Angles on a Circle Calculate and label the benchmark angles on the circle.



Classify and label the inside angles as acute, right, obtuse, or reflex.



Label 0° and 180° . Then, draw an angle that is about 270° in each circle and label it.



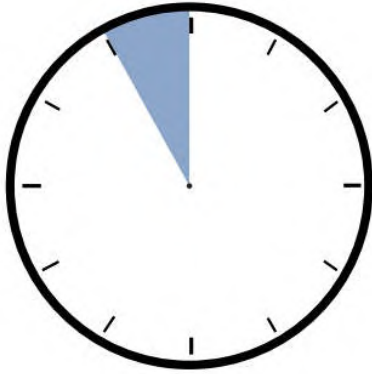
Lesson (3): Angles on a Clock Face:

Angle Reasoning Look at the angle shown. Is the angle closer to 135 or 225 degrees? How do you know? Explain your reasoning.

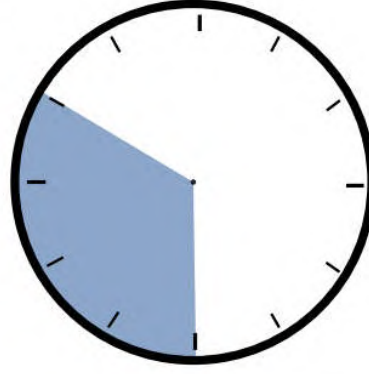


Fractions and Angles on a Clock Write the fraction of the clock shaded and how many degrees of the clock that fraction represents.

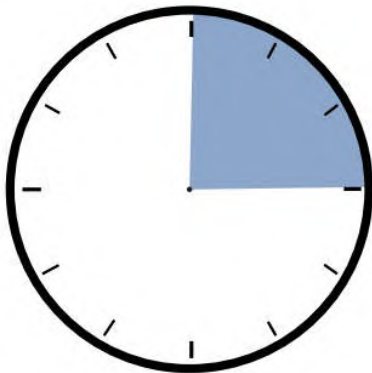
1.



2.

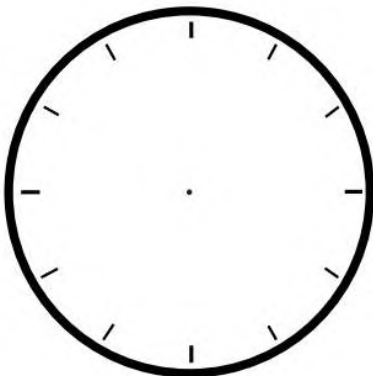


3.

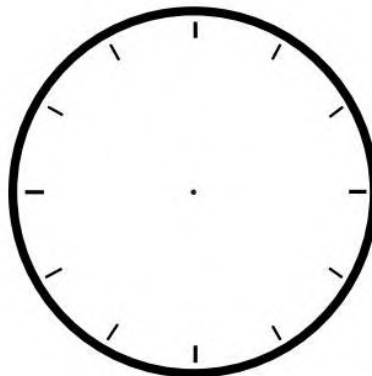


Use the blank clock faces and what you know about benchmark angles to write the missing angle measurements.

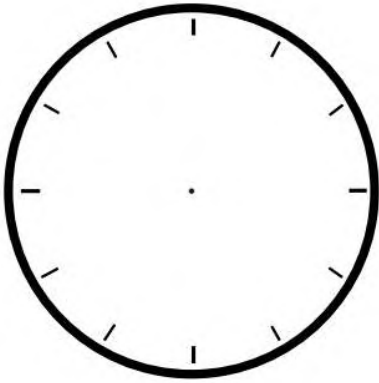
4. $\frac{2}{12} =$



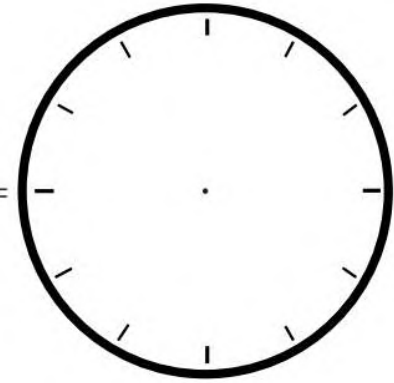
5. $\frac{3}{4} =$



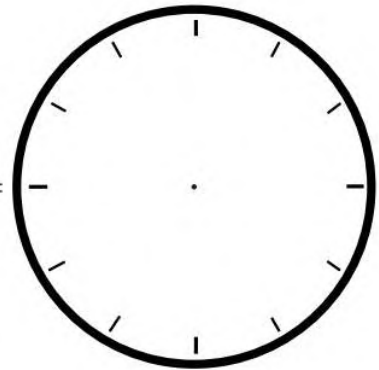
6. $\frac{2}{3} =$



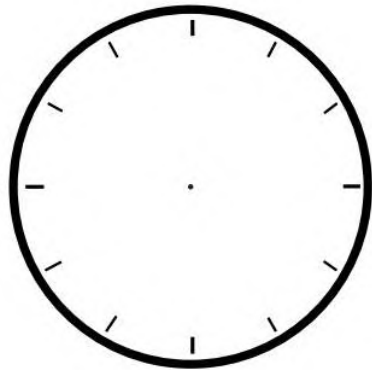
7. $\frac{6}{12} =$



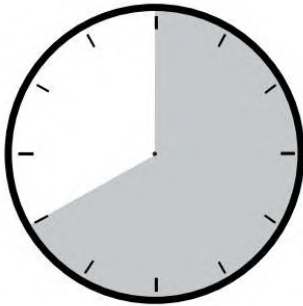
8. $\frac{5}{12} =$



9. $\frac{11}{12} =$

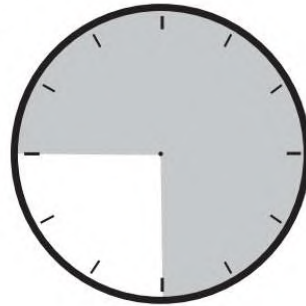


2.



_____ = _____

3.



_____ = _____

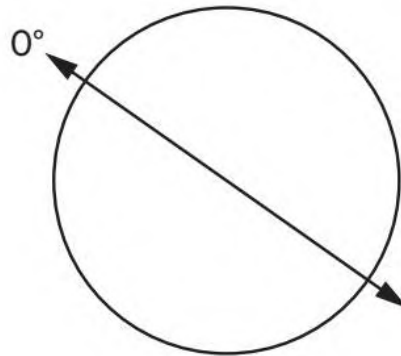


Homework

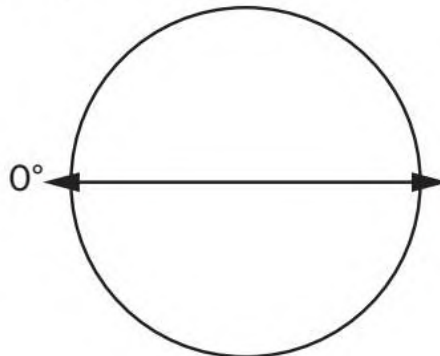
1. How many degrees are there in a straight angle?



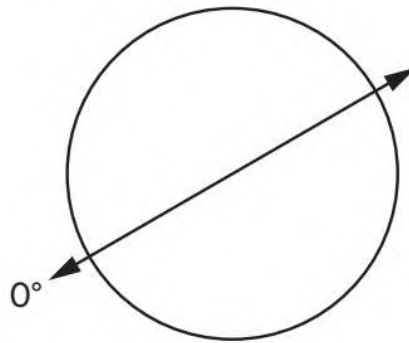
2. Label 180 degrees. Draw an obtuse angle moving clockwise from 0 degrees. Label the angle.



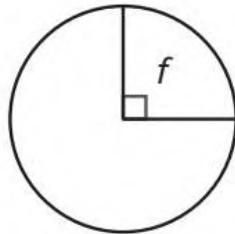
3. Label 180 degrees. Draw an acute angle moving counterclockwise from 0 degrees. Label the angle.



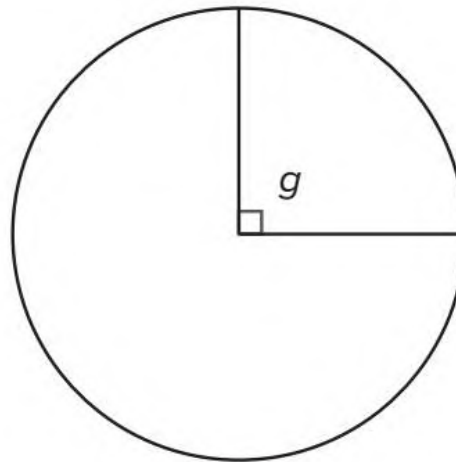
4. Label 180 degrees. Draw a right angle moving clockwise from 0 degrees. Label the angle.



Two circles are shown.



Circle F



Circle G

Which statement *best* compares the measurements of the angle in circle G and the angle in circle F?

- A. The measurement of angle g in circle G is larger than the measurement of angle f in circle F because circle G is larger in size.
- B. The measurement of angle f in circle F is larger than the measurement of angle g in circle G because circle F is smaller in size.
- C. Angles g and f have the same measurement because all circles are 360° regardless of size.
- D. Angles g and f have the same measurement because all circles are the same size.



The analog clock reads 11:10. The clock's hands create an angle that represents $\frac{1}{4}$ of the clock.



Which two clocks show times that create the same angle?

A.



B.



C.



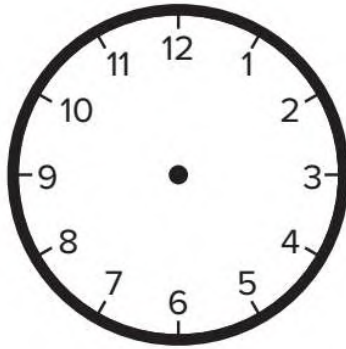
D.



E.



An analog clock is shown.



Which time would create an angle closest to 180° ?

- A. 6:00
- B. 9:00
- C. 12:15
- D. 8:30



The hands of a clock form different angles. The hands form a 90° angle at 3:00. Which time would result in an angle greater than 90° ?

- A. 3:05
- B. 3:15
- C. 3:30
- D. 3:45



An angle is formed by the hands of a clock.

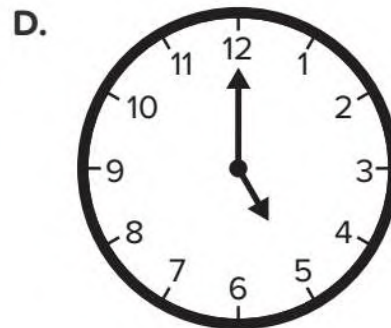
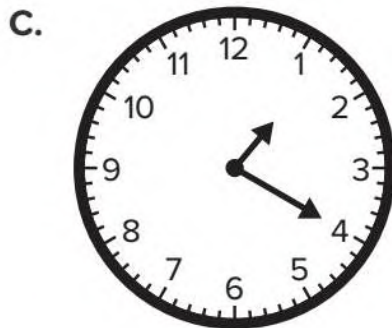
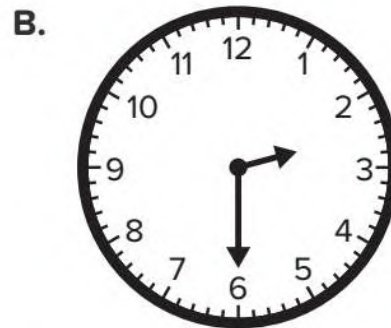
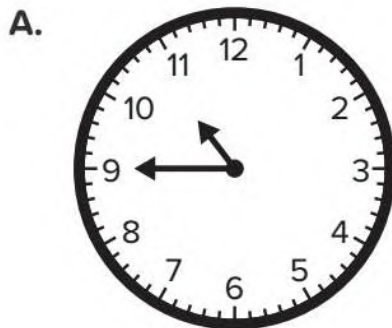


Which is the best estimate of the angle created by the hands of the clock shown?

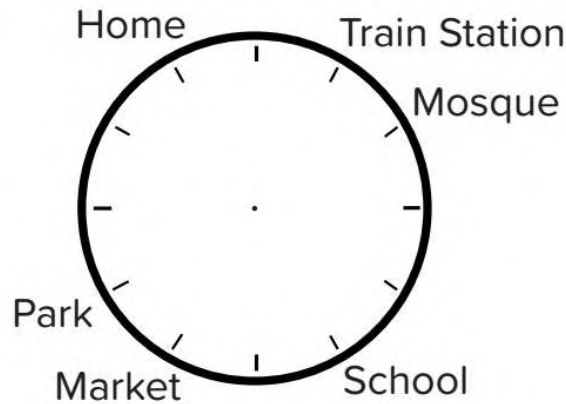
- A. 25° B. 33° C. 90° D. 120°



Asmaa estimated that the hands on a clock made an angle of approximately 60 degrees. Which option could be the time shown on the clock?



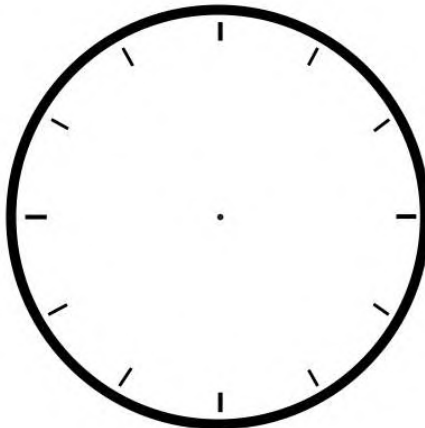
Traveling Around Town For each problem, imagine you are walking from one place, through the center of town, to the second place. Identify the angles traveled between the places in town. (Hint: Each section of the clock face measures 30 degrees.)



1. Home and school:
2. Park and school:
3. Market and home:
4. Mosque and train station:
5. Mosque and market:
6. School and market:



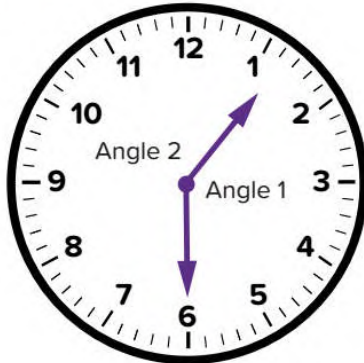
1. Label the angle measurements around the clock.



Lesson (4): Estimating Angles on a Clock:

Telling Time and Estimating Angles Write the time shown on each clock. Then, estimate the measurement of Angle 1 and Angle 2.

1.

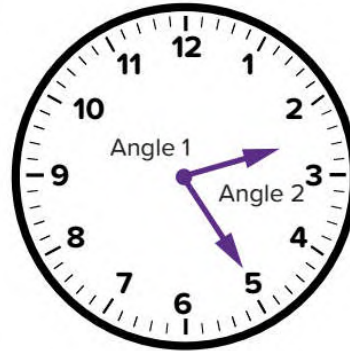


Time

Angle 1

Angle 2

2.



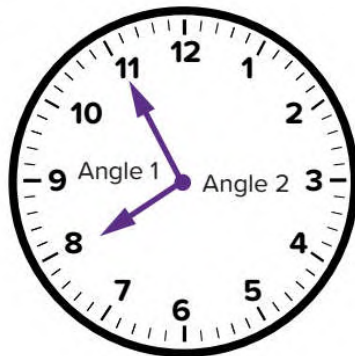
Time

Angle 1

Angle 2



3.

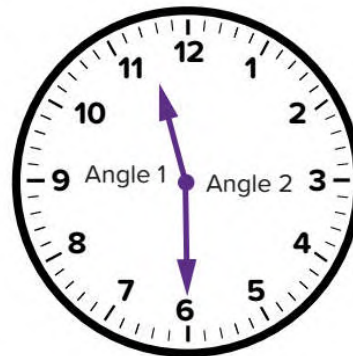


Time

Angle 1

Angle 2

4.



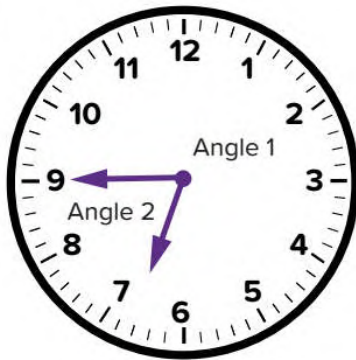
Time

Angle 1

Angle 2



5.

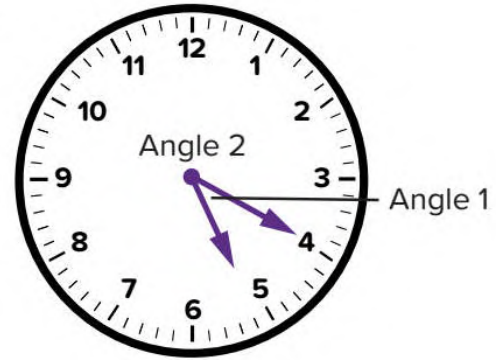


Time

Angle 1

Angle 2

6.



Time

Angle 1

Angle 2



Creating Angles on a Clock Write three different times when the hands on the clock create the angle given.

1. 180° 2. 30° 

Lesson (5): Using Paper Models to Measure and Draw Angles:

1. Which could be the measurement of an acute angle?

90 degrees

30 degrees

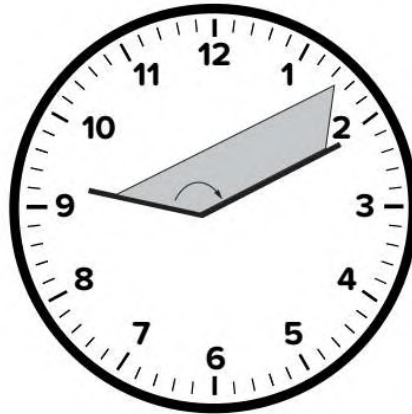
120 degrees



2. Estimate the measurement of the angle.



3. Estimate the measurement of the angle.

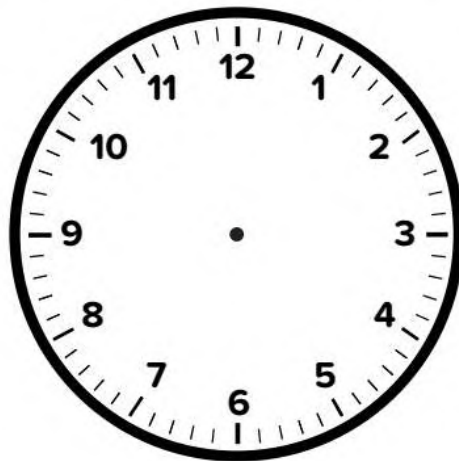


Homework

Estimate the measurement of the angle on this clock.



Draw the hands to show a time when the angle formed is about 60°.



Concept (2)

Measuring and Drawing Angles

Lesson (6): Understanding Protractors:

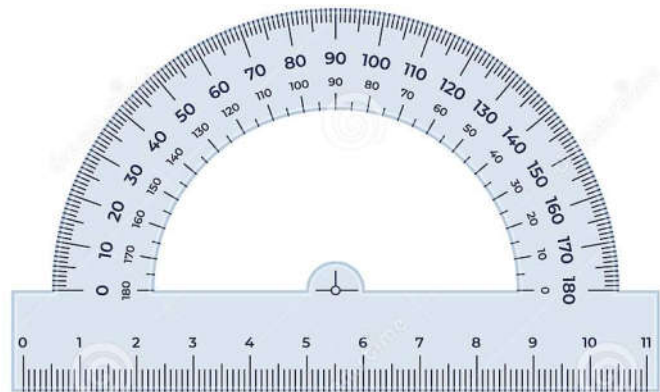
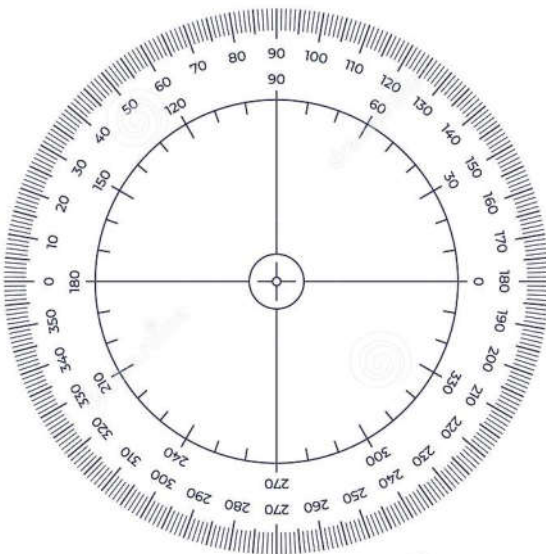
Degrees

Essential Question How are degrees related to fractional parts of a circle?

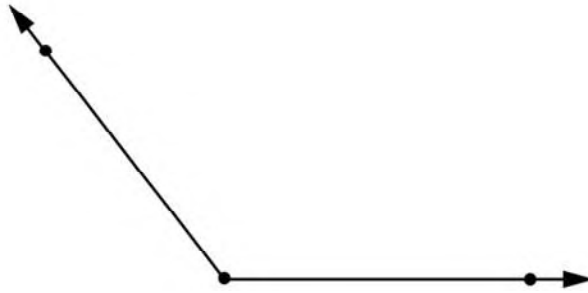
CONNECT You can use what you know about angles and fractional parts of a circle to understand angle measurement. Angles are measured in units called **degrees**. Think of a circle divided into 360 equal parts. An angle that turns through $\frac{1}{360}$ of the circle measures 1 degree.

Math Idea

The symbol for degrees is $^{\circ}$.



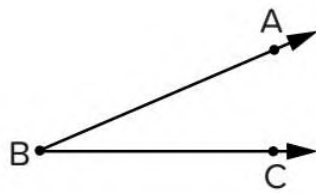
Write three different names for each angle.



Name 1 _____

Name 2 _____

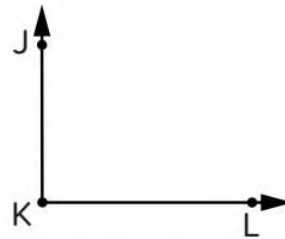
Name 3 _____



Name 1 _____

Name 2 _____

Name 3 _____



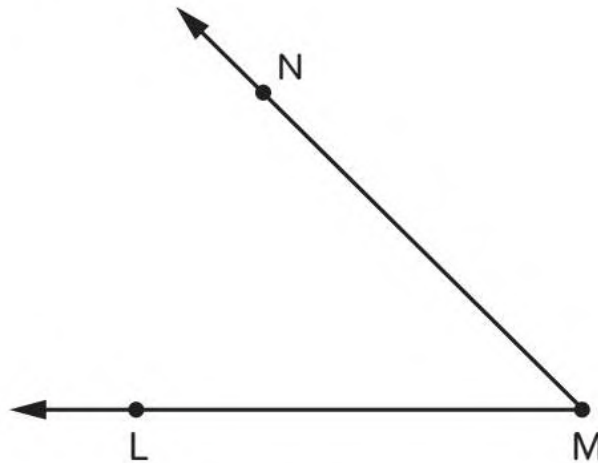
Name 1 _____

Name 2 _____

Name 3 _____



Fill in the blanks below with the correct answer choice from each group.
Consider the angle.



A.

LM
ML

B.

MN
NM

C.

L
M
N
LMN

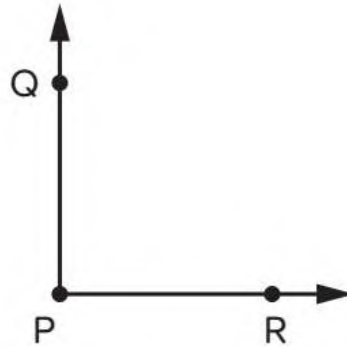
The angle is formed by ray **A.** _____ and ray **B.** _____.

The vertex of the angle is point **C.** _____.



Which *three* choices are acceptable names for the angle shown?

Consider the angle.



A. $\angle PQR$

C. $\angle RPQ$

E. $\angle Q$

B. $\angle QPR$

D. $\angle P$

F. $\angle R$



Lesson (7): Measuring Angles, Part (1):

Classifying Angles Classify each angle as acute, obtuse, right, or straight.

- | | | | | |
|----|----|----|----|-----|
| 1. | 2. | 3. | 4. | 5. |
| 6. | 7. | 8. | 9. | 10. |

Acute:,,

Right:,

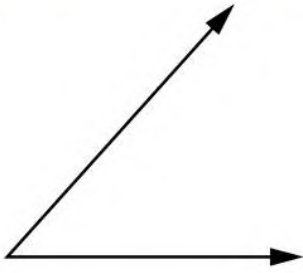
Obtuse:,

Straight:,,

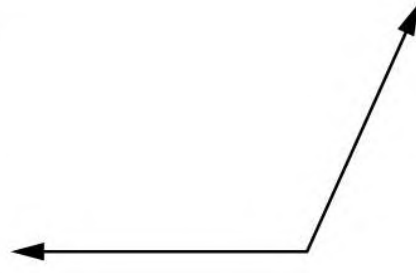


Measurement Practice

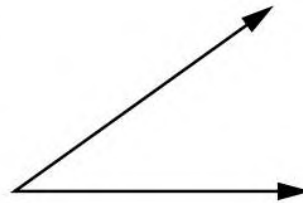
1.



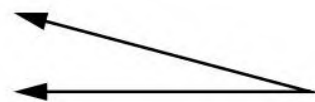
2.



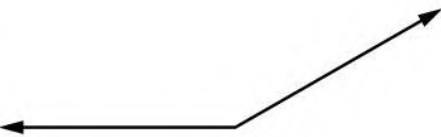
3.



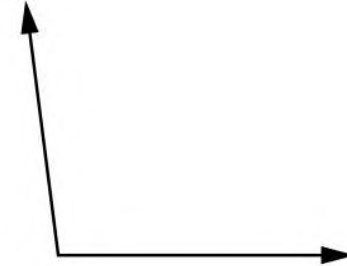
4.



5.

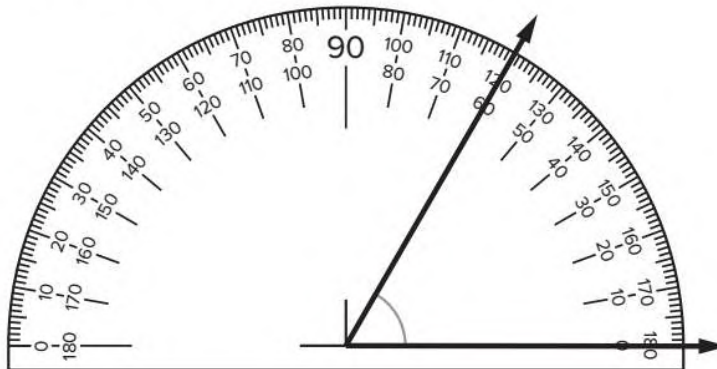


6.





What is the measurement of this angle?



A. 60°

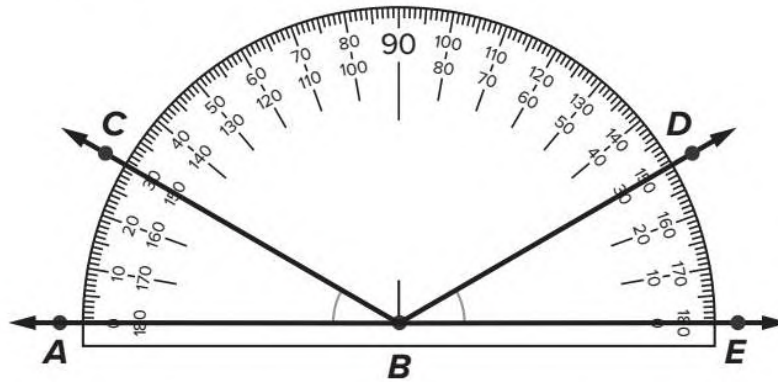
B. 90°

C. 120°

D. 180°



Ahmed drew angle ABC and angle DBE .

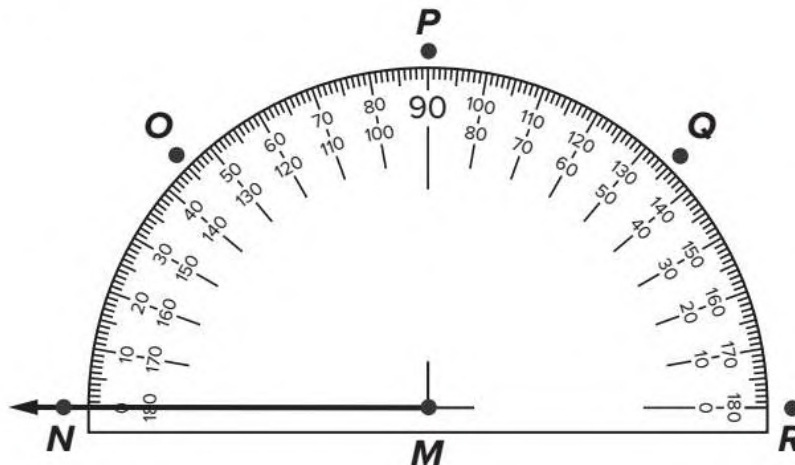


Which statement is true about the measurements of the angles Ahmed drew?

- A. The measurement of each angle is 30° .
- B. The measurement of each angle is 150° .
- C. The measurement of angle ABC is 30° and the measurement of angle DBE is 150° .
- D. The measurement of angle ABC is 150° and the measure of angle DBE is 30° .



Sahar drew ray MN .

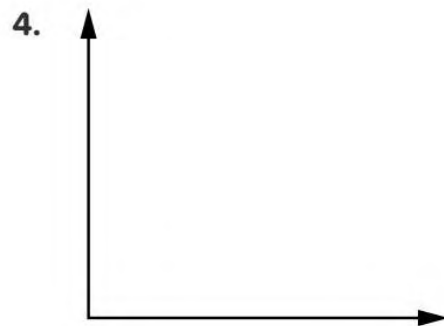
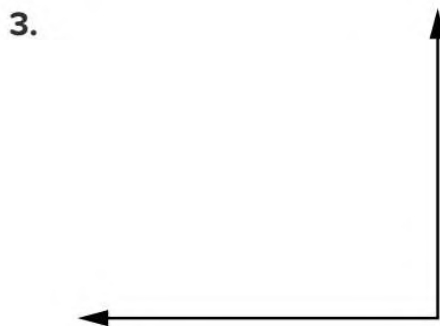
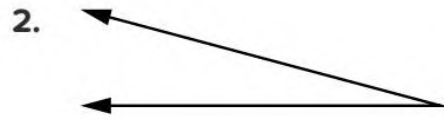
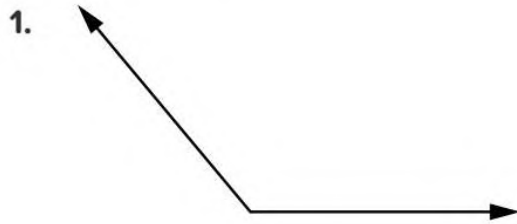


Which ray should Sahar draw next to form an angle that measures 90° ?

- A. ray MO
- B. ray MP
- C. ray MQ
- D. ray MR



Classify each angle as acute, obtuse, or right. Then, use a protractor to find the angle measurement.

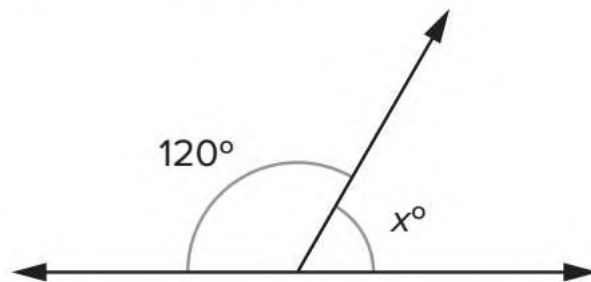


5. True or false: An acute angle can measure 80 degrees.



Lesson (8): Measuring Angles, Part (2):

A set of angles is shown in the figure.

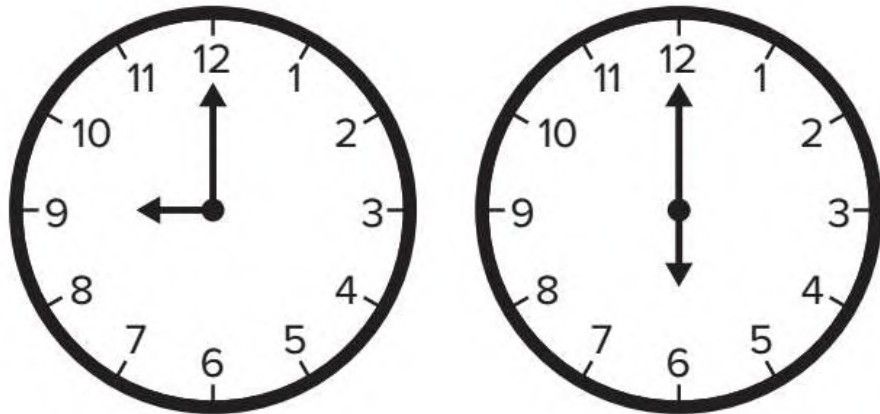


What is the value of x in the figure?

- A. 80 B. 120 C. 60 D. 300



Two clocks are shown.



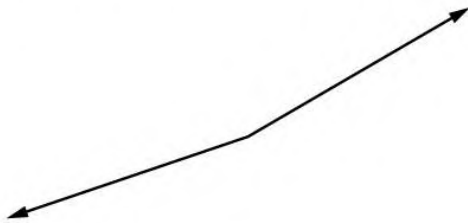
What is the difference in the angles formed by the hands on each clock?

- A. 30° B. 90° C. 270° D. 110°

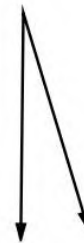


Use a protractor to measure each angle. Record the measurement on the inside of the angle.

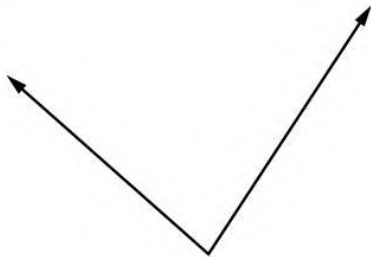
1.



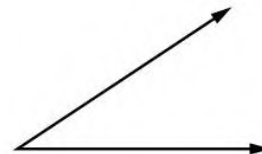
2.



3.



4.



Lesson (9): Drawing Angles:

Draw an estimate of the angle.

1. 140°

2. 12°

Use a protractor to draw each angle.

3. 65°

4. 125°

5. 50°



Drawing Angles with a Protractor Use your protractor to draw an angle with the given measurement.

1. 55°

2. 30°

3. 90°

4. 145°

5. 110°

6. 165°

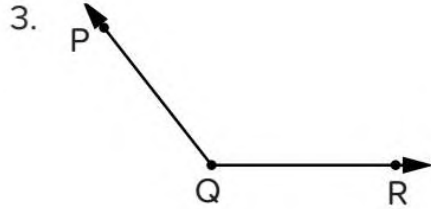
7. 100°

8. 70°



Homework

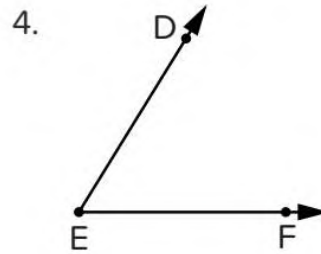
Write three different names for each angle.



Name 1 _____

Name 2 _____

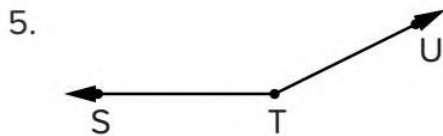
Name 3 _____



Name 1 _____

Name 2 _____

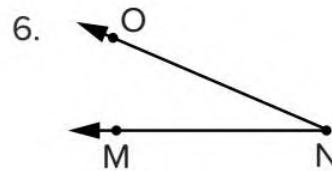
Name 3 _____



Name 1 _____

Name 2 _____

Name 3 _____



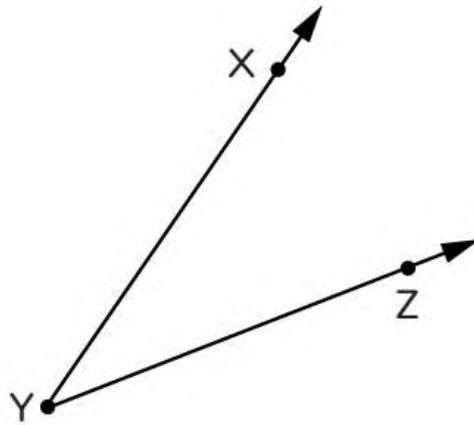
Name 1 _____

Name 2 _____

Name 3 _____



Name the rays and the vertex of the angle.

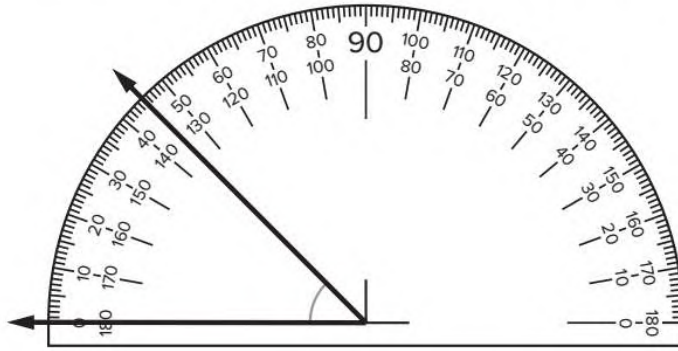


Name the angle in Problem 1 in three different ways.

Explain why a protractor has two sets of numbers (scales).



Fill in the blanks below with the correct answer choice from each group.



A.

compass
protractor
ruler
straightedge

B.

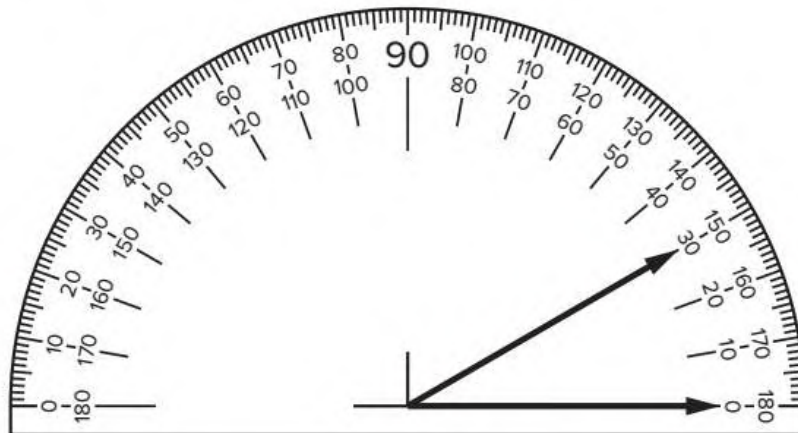
45°
55°
135°
145°

The tool used to measure angles is called a **A.** _____.

The measurement of the angle shown is **B.** _____.



An angle is shown on the protractor.

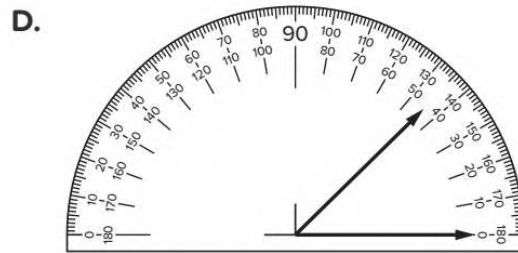
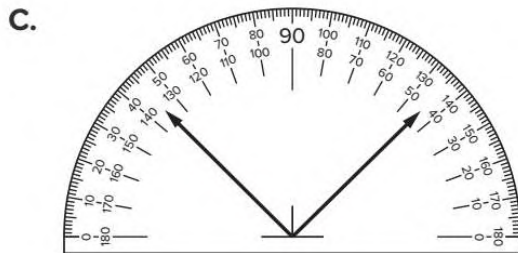
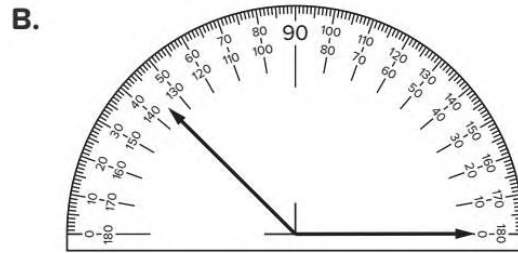
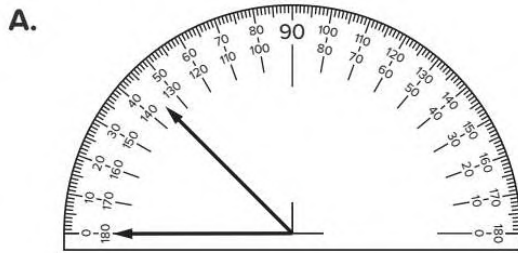


What is the measurement of the angle shown?

- A.** 180° **B.** 30° **C.** 90° **D.** 150°



Which two choices show angles of 45°?



. Amal makes round cookies. Each cookie is dipped equally in two different colors of icing, black and white, to cover the cookie. What is the angle measurement of the portion of the cookie that is covered in white icing?

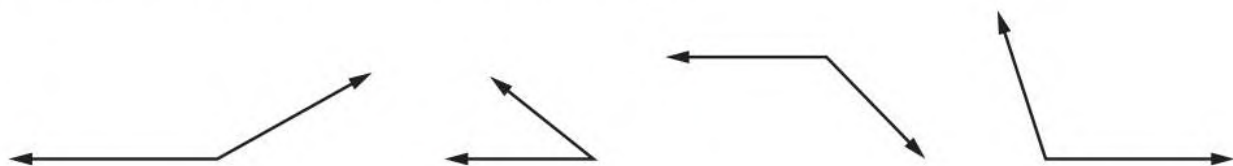
- A. 45° B. 90° C. 180° D. 360°



Mr. Mohamed's restaurant sells slices of a circular tart. Each slice has sides that form a 30° angle. How many slices does it take to make one full circular tart?



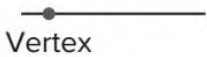
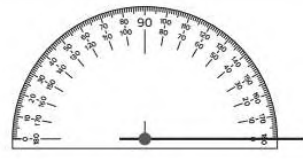
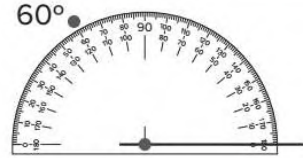
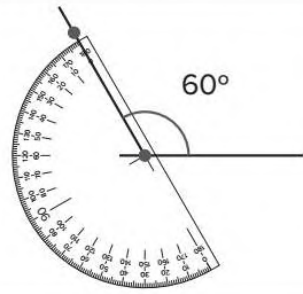
Circle the angle that measures 130 degrees.



Basem used a protractor to draw a 60° angle. The steps he followed to draw the angle are shown.

Which error, if any, did Basem make when drawing his angle?

- A. He did not make any errors drawing the angle.
- B. He read the incorrect set of numbers on the protractor.
- C. He positioned the protractor incorrectly when marking the angle.
- D. He both read the incorrect set of numbers and positioned the protractor incorrectly when marking the angle.

Description	Steps
Draw a line	 Vertex
Measure	
Mark	
Connect	



Lesson (10): Drawing Angles with a Protractor:

For each angle, draw the angle using a protractor.

1. 25°

2. 155°

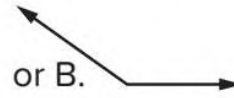
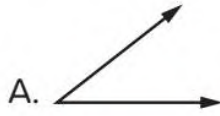
3. 72°

4. 15°

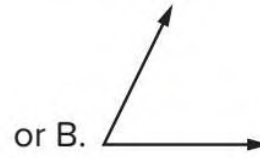


Which Angle Is It? For each angle measurement given, circle the picture of the angle that you think matches that measurement.

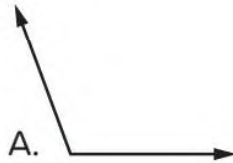
1. 45°



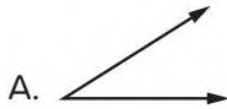
2. 60°



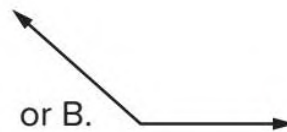
3. 125°



4. 85°



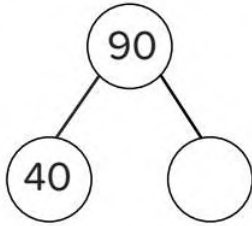
5. 150°



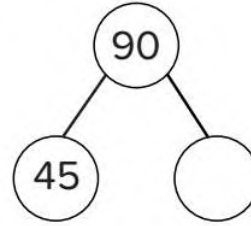
Lesson (11): Composing and Decomposing Angles:

Composing and Decomposing Numbers Identify and record the missing part of each addition/subtraction number bond.

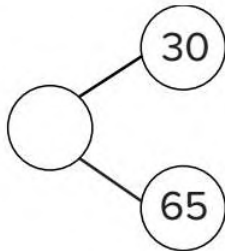
1.



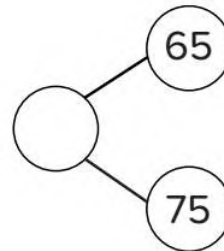
2.



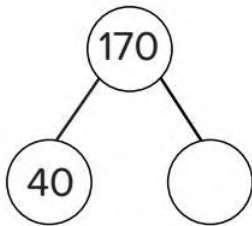
3.



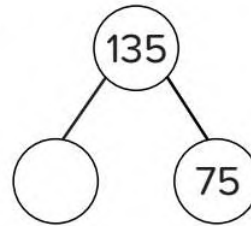
4.



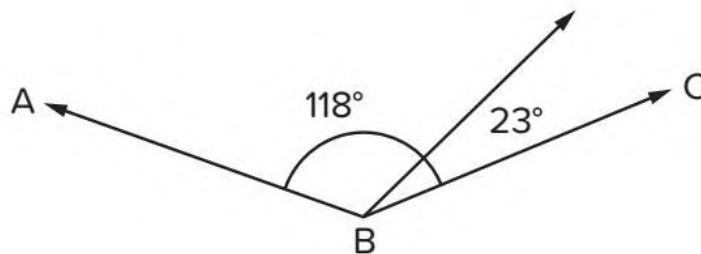
5.



6.

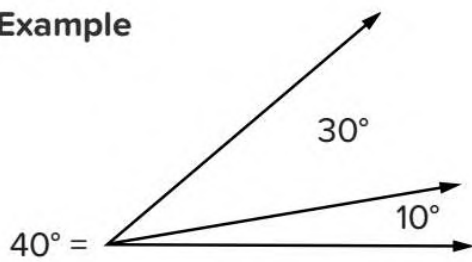


Find the measure of Angle ABC.

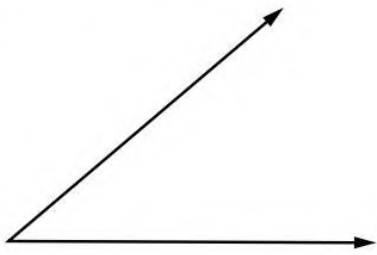


Composing and Decomposing Angles How can angles be composed and decomposed? Measure each of the angles and record the measurement. Then, use the information to answer the questions.

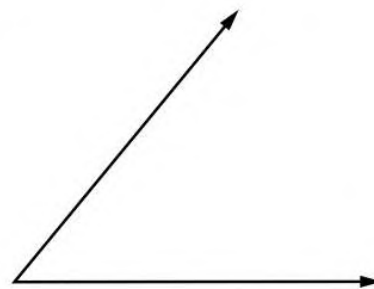
Example



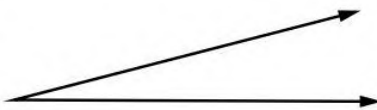
A.



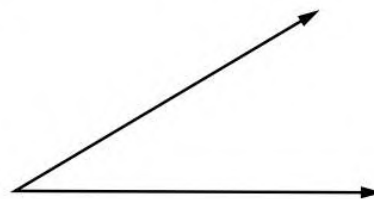
B.



C.



D.



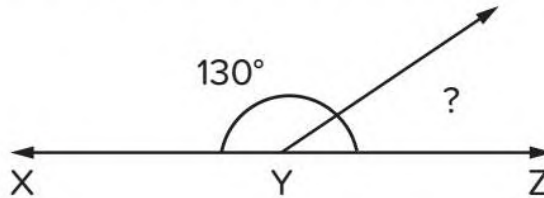
1. Abeer decomposed a 55° angle into two angles. Which two angles did Abeer use?
2. Zeina decomposed a 90° angle into two parts. One part is 60° . What angle represents the other part?
3. Nahla wants to make a 70° angle. Which two angles can Nahla use to compose a 70° angle?
4. Rashad composes a new angle using angles A, B, and C. What is the measurement of the new angle?
5. Nabil composes a new angle using a right angle and angle D. What is the measurement of the new angle?



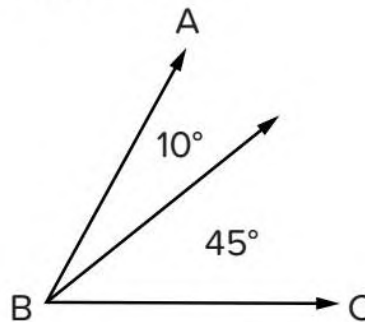
Lesson (12): Real-World Problems with Angles:

Find the Missing Angle Use your understanding of angles to answer each question.

1. Angle XYZ is a straight angle. What is the measure of the mystery angle?



2. What is the measure of the angle ABC?



Gamal observed that the hands on a clock are rays and that they make angles. Write the time shown on each clock and the type of angle formed. Then, estimate the measure of each angle.

1.

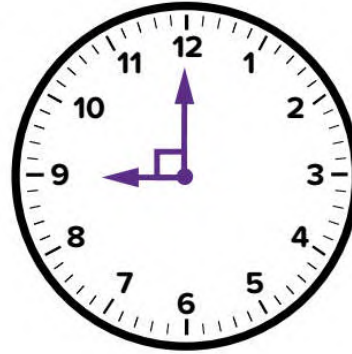


Time _____

Type _____

Estimate _____

2.



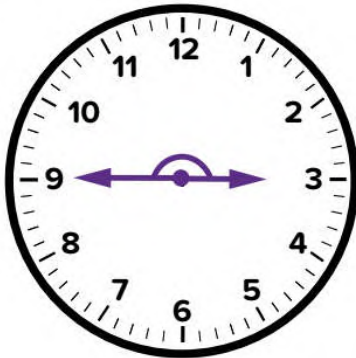
Time _____

Type _____

Estimate _____



3.

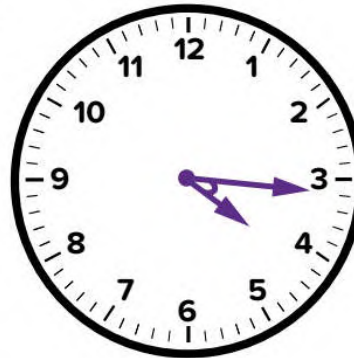


Time _____

Type _____

Estimate _____

4.



Time _____

Type _____

Estimate _____



Homework

Drawing Angles with a Protractor Use your protractor to draw an angle with the given measurement.

1. 58°

2. 27°

3. 94°

4. 148°

5. 106°

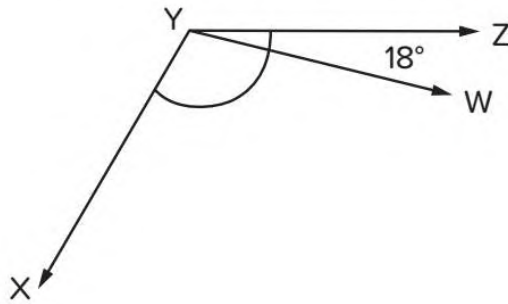
6. 172°

7. 122°

8. 78°



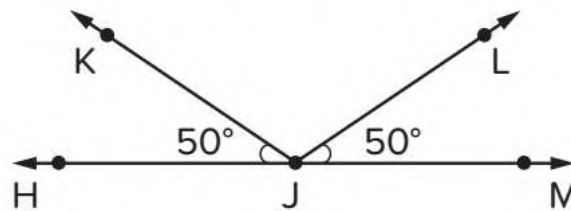
Angle XYZ measures 117° . What is the measure of Angle XYW?



Ola split a right angle into five equal angles. What is the measure of each smaller angle?



The figure shows angle HJM. The measure of angle HJM is 180° . What is the measure, in degrees, of angle KJL?



Unit (13) Assessment

[1] Choose the correct answer:

1. _____ angle measures 180°

- A. An acute
B. A right
C. An obtuse
D. A straight

2. The best measure estimation of the opposite angle is _____

- A. 40°
B. 90°
C. 130°
D. 170°

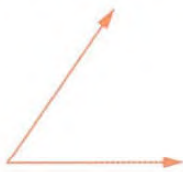


3. How many rotations around a circle is 180° degrees ?

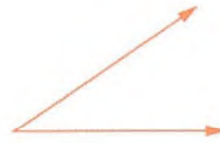
- A. $\frac{1}{4}$ of a full rotation.
B. $\frac{1}{2}$ of a full rotation.
C. $\frac{1}{3}$ of a full rotation.
D. $\frac{3}{4}$ of a full rotation.

4. Which angle is measured 125° ?

A.



B.



C.



D.



5. The fraction which represents the colored part equals _____

- A. $\frac{1}{3}$
B. $\frac{2}{3}$
C. $\frac{1}{4}$
D. $\frac{5}{6}$



6. _____ angle measures between 0° and 90° .

- A. An acute
B. A right
C. An obtuse
D. A straight

7. The measure of the straight angle is _____ $^\circ$

- A. 90
B. 100
C. 150
D. 180



[2] Complete:

1. The two sides of the opposite angle are _____ and _____

2. An obtuse angle measures between _____ and _____

3. $\frac{1}{4}$ of a circle measured _____°

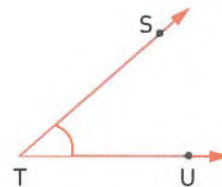
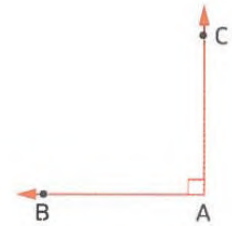
4. The opposite angle named as _____, _____ and _____

5. A _____ is an instrument used to measure and drawing angles.

6. The estimated measure when the hands of the clock shows 10:05 is _____

7. A right angle measured _____°.

8. There are _____ degrees in a circle.



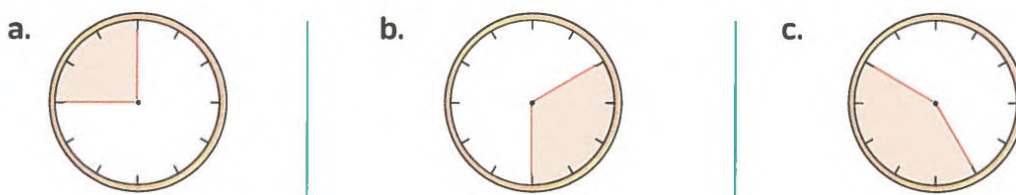
[3] Answer the following:

1. Draw $\angle ABC$ with measure of 127° and classify it by its type.

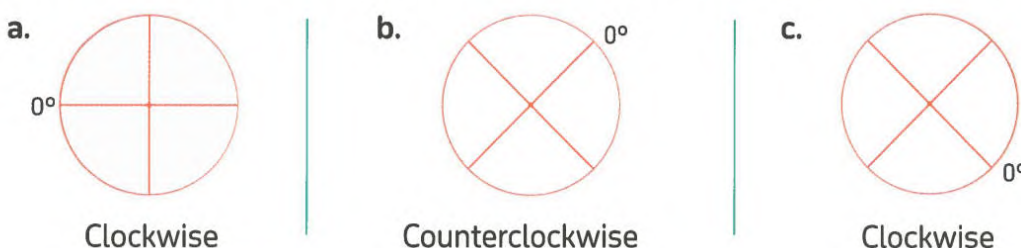
2. Measure each of the following angles, then classify each angle by its type.



3. Write the measure of the colored angle in degrees in each clock.



4. Move from 0° in the given direction. Then label 90° , 180° , 270° and 360° on each circle.



[4] Choose the correct answer:

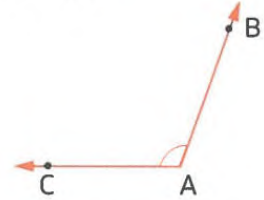
1. The measure of the colored angle of the opposite clock is _____°

- A. 90 B. 120 C. 150 D. 180



2. The opposite angle is named as angle _____

- A. ABC B. BCA
C. CAB D. CBA

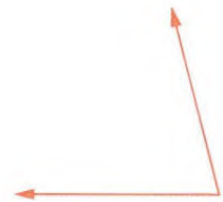


3. The measure of the acute angle is less than 90° and greater than _____°

- A. zero B. 90 C. 180 D. 360

4. The measure of the opposite angle is _____°

- A. 75 B. 105
C. 55 D. 95



5. _____ angle is $\frac{1}{4}$ of the circle.

- A. An acute B. An obtuse C. A right D. A straight

6. The related fraction to the angle of measure 120° is _____

- A. $\frac{1}{6}$ B. $\frac{1}{4}$ C. $\frac{1}{3}$ D. $\frac{1}{2}$

7. The straight angle is the same as _____ right angles.

- A. 1 B. 2 C. 3 D. 4

BEST WISHES

