Name _____ Date _____ Class _____

مدرسة صقر الإمارات الدولية الخاصة
EMIRATES FALCON INT'L. PRIVATE SCHOOL

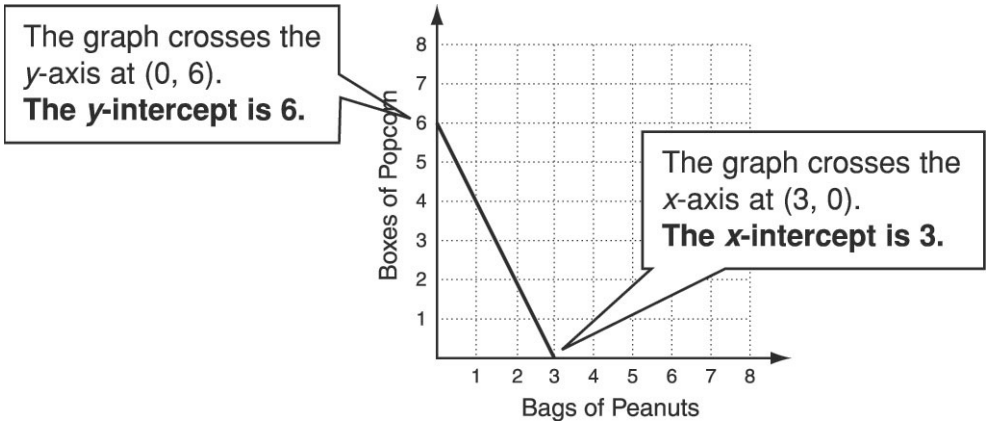
Final Revision sheet Grade 8

LESSON 5-2

Using Intercepts

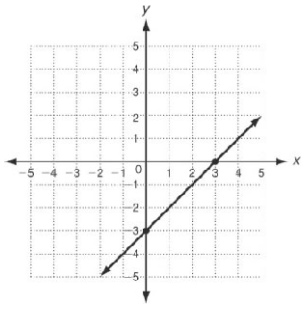
Reteach

Doug has $12 to spend on popcorn and peanuts. The peanuts are $4 and popcorn is $2. If he spends all his money, the equation $4x + 2y = 12$ shows the amount of peanuts, x, and popcorn, y, he can buy. Here is the graph of $4x + 2y = 12$.



To find the y-intercept, substitute $x = 0$. Solve for y. $4(0) + 2y = 12$
He can buy 6 boxes of popcorn (y) if he buys 0 peanuts. $y = 6$
To find the x-intercept, substitute $y = 0$. Solve for x. $4x + 2(0) = 12$
He can buy 3 bags of peanuts (x) if he buys 0 popcorn. $x = 3$

Find each *x*- and *y*-intercept.

1. 

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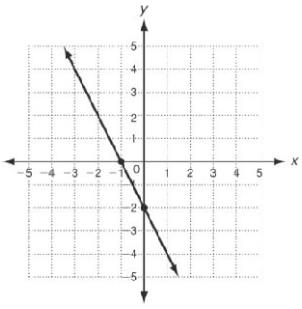
2. 

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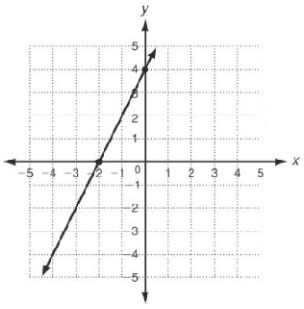
3. 

_____

Find each intercept. Use these two points to graph each line.

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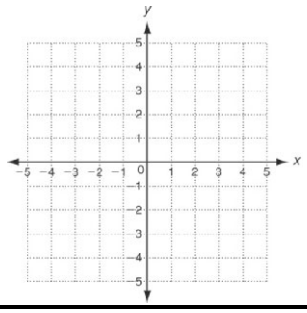
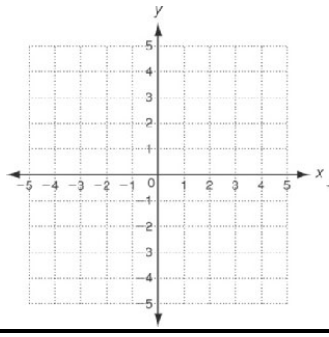
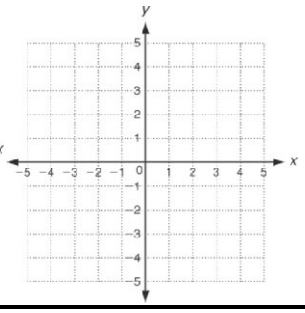
4. $3x + 9y = 9$



5. $4x + 6y = -12$



6. $2x - y = 4$



LESSON 5-3

Interpreting Rate of Change and Slope

Reteach

Find the rate of change, or **slope**, for the graph of a straight line by finding $\frac{\text{change in } y}{\text{change in } x}$.

Step 1: First choose any two points on the line.

Step 2: Begin at one of the points.

Step 3: Count vertically until you are even with the second point.

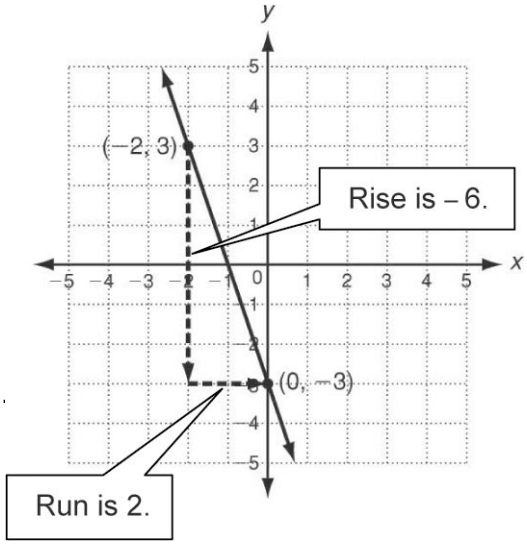
This is the rise. If you go down the rise will be negative. If you go up the rise will be positive.

Step 4: Count over until you are at the second point.

This is the run. If you go left the run will be negative. If you go right the run will be positive.

Step 5: Divide to find the slope.

$$\text{slope} = \frac{\text{rise}}{\text{run}} = -\frac{6}{2} = -3$$

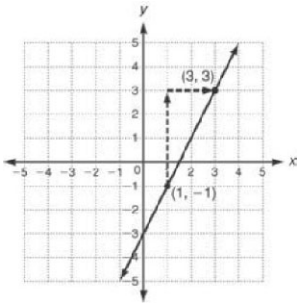


The **slope of a horizontal line is zero**. A horizontal line has no steepness at all.

The **slope of a vertical line is undefined**. A vertical line is infinitely steep.

Find the slope of each line.

1.



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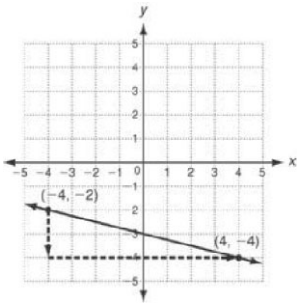

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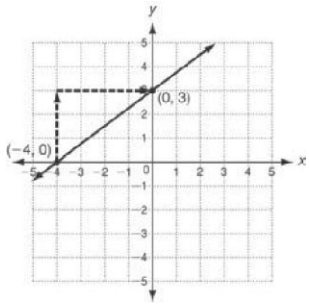

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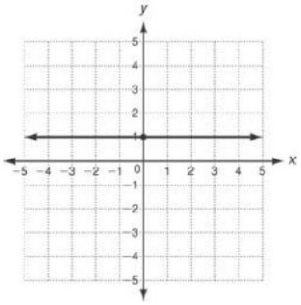
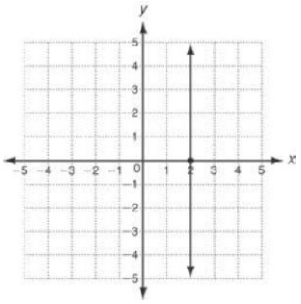
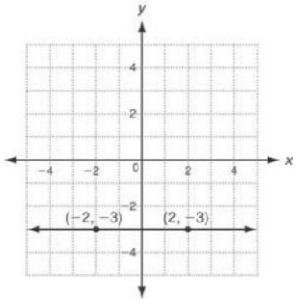






LESSON 6-1

Slope-Intercept Form

Reteach

An equation is in **slope-intercept form** if it is written as:

$$y = mx + b.$$

m is the slope.
b is the *y*-intercept.

You can use the slope and *y*-intercept to graph a line.

Write $2x + 6y = 12$ in slope-intercept form. Then graph the line.

Step 1: Solve for *y*.

$2x + 6y = 12$ *Subtract 2x from both sides.*

$\underline{-2x} \quad \underline{-2x}$

$6y = -2x + 12$

$\frac{6y}{6} = \frac{-2x + 12}{6}$ *Divide both sides by 6.*

$y = -\frac{1}{3}x + 2$ *Simplify.*

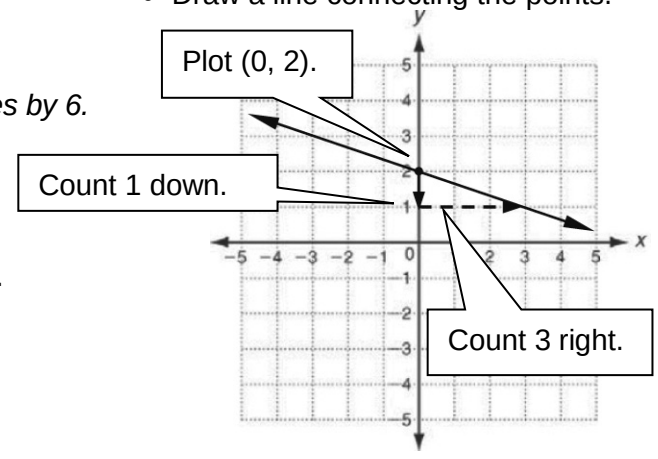
Step 2: Find the slope and *y*-intercept.

slope: $m = -\frac{1}{3} = \frac{-1}{3}$

y-intercept: $b = 2$

Step 3: Graph the line.

- Plot (0, 2).
- Then count 1 **down** (because the rise is **negative**) and 3 **right** (because the run is **positive**) and plot another point.
- Draw a line connecting the points.



Find each slope and *y*-intercept. Then graph each equation.

1. $y = \frac{1}{2}x - 3$
2. $3x + y = 2$
3. $2x - y = 3$

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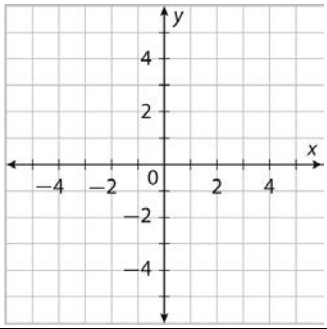
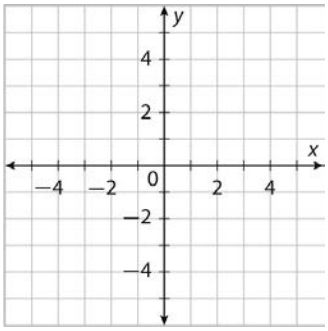
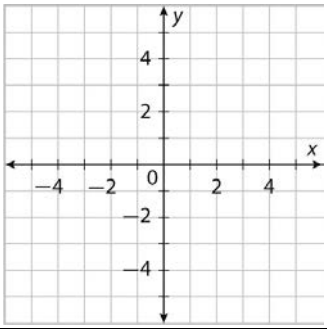
slope: _____ slope: _____ slope: _____

y-intercept: _____ *y*-intercept: _____ *y*-intercept: _____







LESSON 6-2

Point-Slope Form

Reteach

You can write a linear equation in slope-intercept form if you are given the slope and a point on the line, or if you are given any two points on the line.

Write an equation that describes each line in slope intercept form.

slope = 3, (4, 2) is on the line

Step 1: Write the equation in point-slope form.

$y - 2 = 3(x - 4)$

Step 2: Write the equation in slope-intercept form by solving for *x*

$y - 2 = 3(x - 4)$

$y - 2 = 3x - 12$

$+2 \qquad +2$

$y = 3x - 10$

(10, 1) and (8, 5) are on the line

Step 1: Find the slope.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{5 - 1}{8 - 10} = \frac{4}{-2} = -2$$

Step 2: Substitute the slope and one point into the point-slope form. Then write in slope-intercept form.

$y - y_1 = m(x - x_1)$

$y - 5 = -2(x - 8)$

$y - 5 = -2x + 16$

$+5 \qquad +5$

$y = -2x + 21$

Write the equation that describes the line in slope-intercept form.

1. slope = −3; (1, 2) is on the line

2. slope = $\frac{1}{4}$; (8, 3) is on the line

3. slope = 4; (2, 8) is on the line

4. (1, 2) and (3, 12) are on the line

5. (6, 2) and (−2, −2) are on the line

6. (4, 1) and (1, 4) are on the line

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LESSON 6-3

Standard Form

Reteach

The graph of a **linear function** is a straight line.

$Ax + By + C = 0$ is the **standard form** for the equation of a linear function.

- A, B, and C are real numbers. A and B are not both zero.
- The variables x and y:

  have exponents of 1.
  are not multiplied together.
  are not in denominators, exponents, or radical signs.

Examples **These are NOT linear functions:**

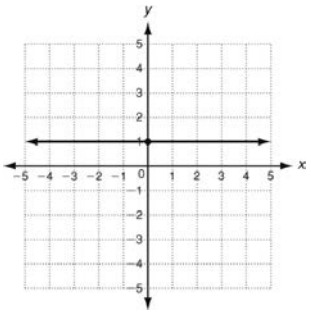
$2 + 4 = 6$	no variable	$\frac{6}{x} = 3$	x in denominator
$x^2 = 9$	exponent on $x \geq 1$	$2^y = 8$	y in exponent
$xy = 8$	x and y multiplied together	$\sqrt{y} = 5$	square root of y

Tell whether each function is linear or not.

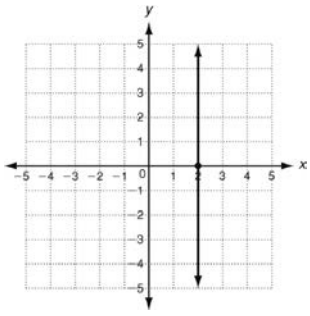
1. $14 = 2\sqrt{x}$ _____
2. $3xy = 27$ _____
3. $14 = \frac{28}{x}$ _____
4. $6x^2 = 12$ _____

The graph of $y = C$ is always a **horizontal** line. The graph of $x = C$ is always a **vertical** line.

Examples



$y = 1$



$x = 2$

Tell whether each equation represents a horizontal line, a vertical line, or neither.

5. $9y = 27$
6. $6x + 7y = 10$
7. $\frac{1}{2}x = 19$
8. $x = 0$

Name _____ Date _____ Class_____

LESSON 4-2

Transversals and Parallel Lines

Reteach

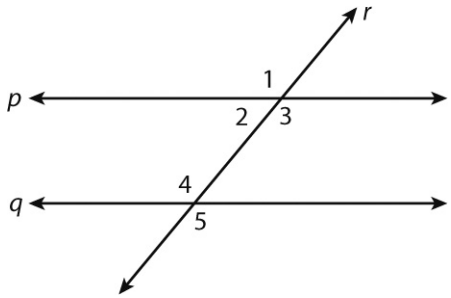
p and *q* are parallel lines, and *r* is a transversal.

$\angle 2$ and $\angle 4$ are same side interior angles.

$\angle 1$ and $\angle 4$ are corresponding angles.

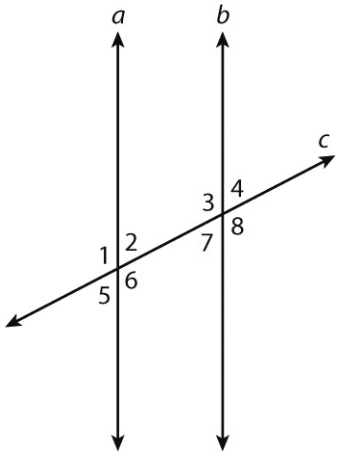
$\angle 3$ and $\angle 4$ are alternate interior angles.

$\angle 1$ and $\angle 5$ are alternate exterior angles.



a and *b* are parallel lines, and *c* is a transversal.

1. Name a pair of alternate interior angles.
2. Name a pair of same side interior angles.
3. Name a pair of corresponding angles.
4. Name a pair of alternate exterior angles.



Alternate interior angles are congruent.

Corresponding angles are congruent.

Alternate exterior angles are congruent.

Same side interior angles are supplementary.

Use the figure above to answer the following questions.

5. If $m\angle 5 = 65°$, $m\angle 2 =$ _____.

6. If $m\angle 6 = 100°$, $m\angle 7 =$ _____.

7. If $m\angle 4 = 78°$, name two other angles that also measure 78°.

LESSON 5-3

SAS Triangle Congruence

Reteach

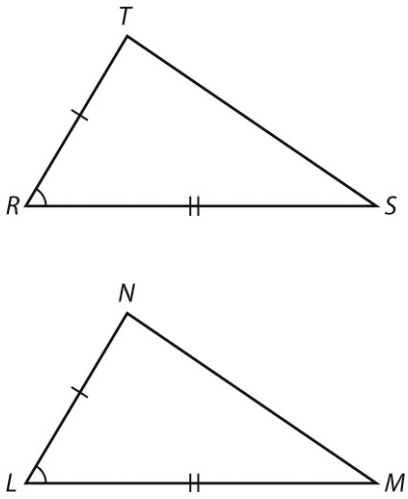
Name _____ Date _____ Class _____

If two sides and the included angle of one triangle are congruent to two sides and the included angle of another triangle, the triangles are congruent.

In the figure $\overline{RT} \cong \overline{LN}$,

$\overline{RS} \cong \overline{LM}$, and $\angle R \cong \angle L$; therefore,

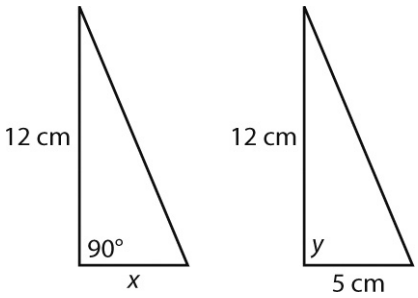
$\triangle RST \cong \triangle LMN$ by SAS.



Using the figure, fill in the missing information needed for $\triangle RST \cong \triangle LMN$ by SAS.

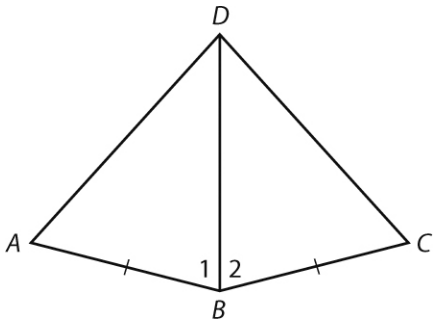
1. $x =$ _____

2. $y =$ _____



Complete the proof about the figure.

Statements	Reasons
1. $\angle 1 \cong \angle 2$; $\overline{AB} \cong \overline{BC}$	1. Given
2. ___ ≅ ___	2. Reflexive Property of Equality
3. $\triangle ABD \cong$ ____	3. ____ ____ ____



LESSON 5-4

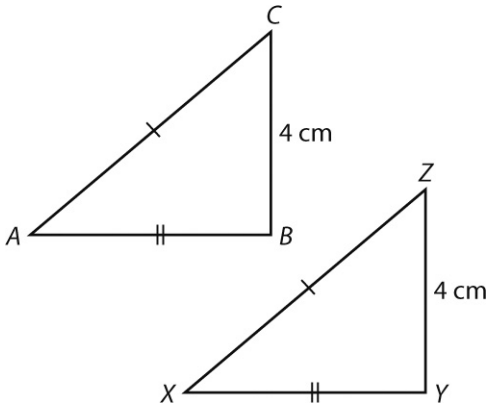
SSS Triangle Congruence

Reteach

Name _____ Date _____ Class_____

If the three sides of one triangle are congruent to three corresponding sides of another triangle, the triangles are congruent.

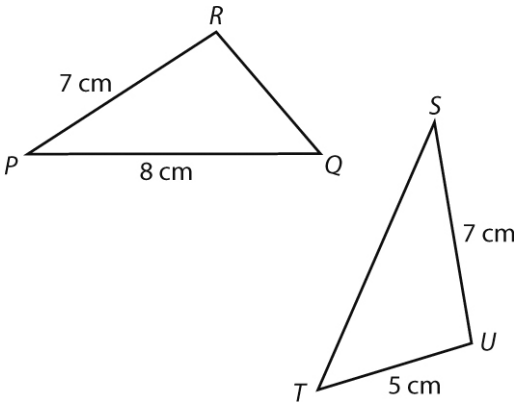
In the figure, $\overline{AB} \cong \overline{XY}$, $\overline{AC} \cong \overline{XZ}$, and $\overline{BC} \cong \overline{YZ}$; therefore, $\triangle ABC \cong \triangle XYZ$ by SSS.



Find the missing values in the figure so that $\triangle PQR \cong \triangle STU$ by SSS.

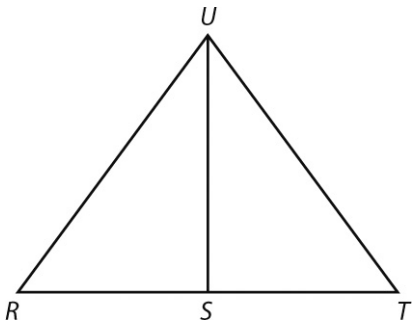
1. $RQ =$ _____

2. $ST =$ _____



Complete the proof for the figure.

Statements	Reasons
1. $\overline{RU} \cong \overline{TU}$; $\overline{US}$ bisects $\overline{RT}$	1. Given
2. ___ ≅ ___	2. Definition of bisect
3. ___ ≅ ___	3. Reflexive property of equality
4. $\triangle$ ___ ≅ $\triangle$ ___	4. ____ ____ ____



LESSON 7-1

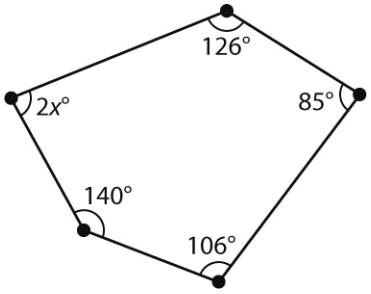
Interior and Exterior Angles

Reteach

Name _____ Date _____ Class_____

The sum of the interior angles of a triangle is 180°. For any convex polygon with n sides, the sum of the interior angles is $(n - 2)180°$.

In the figure, there are five sides. So, the sum of the interior angles is $(5 - 2)(180°) = 3(180°) = 540°$.



Therefore, to find x, solve the equation:

$2x + 140 + 106 + 85 + 126 = 540$

$2x + 457 = 540$

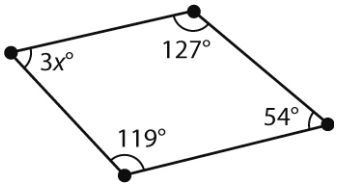
$2x = 83$

$x = 41.5$

1. The interior angles of a triangle have measures of 55°, 25°, and x°. What is x?

   _____

2. What is the value of x in the figure? _____

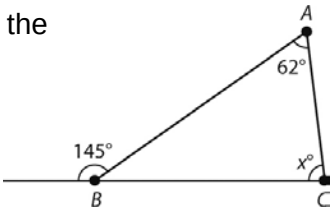


The measure of an exterior angle of a triangle is equal to the sum of the measures of the two remote interior angles.

In the figure,

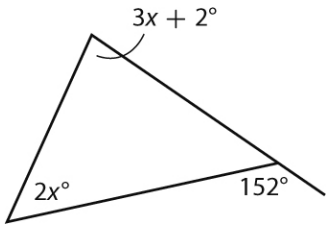
$62 + x = 145$

$x = 83$

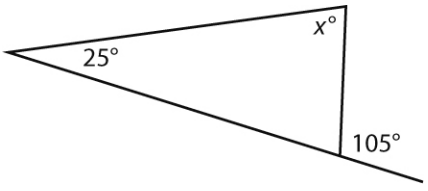


Find the value of x in each of the figures below.

3. _____



4. _____



LESSON 7-2

Isosceles and Equilateral Triangles

Reteach

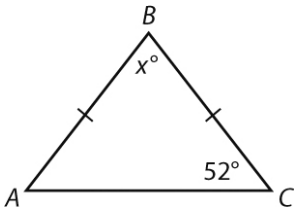
Name _____ Date _____ Class _____

An isosceles triangle has two congruent sides. The angles opposite the congruent sides are also congruent. The remaining angle is called the vertex angle.

In the figure, since $\overline{AB} \cong \overline{BC}$, $m\angle A = 52°$.

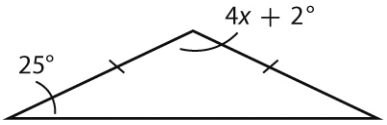
To find x, solve $180 = x + 52 + 52$.

$$180 = x + 104$$
$$76 = x$$

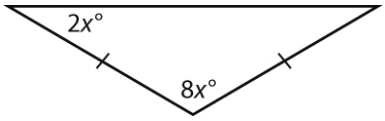


Use the figure to find the value of *x*.

1. _____



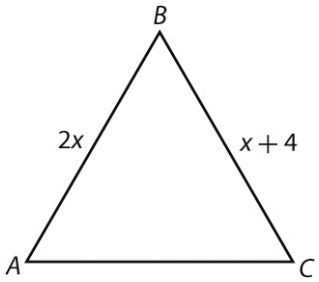
2. _____



All three sides of an equilateral triangle are congruent and the measure of each interior angle is 60°.

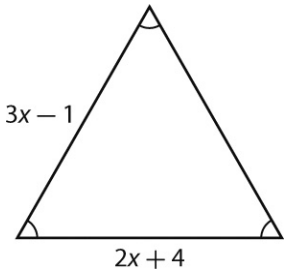
If ΔABC is an equilateral triangle, then x can be found by solving the equation $2x = x + 4$.

$$2x = x + 4$$
$$x = 4$$

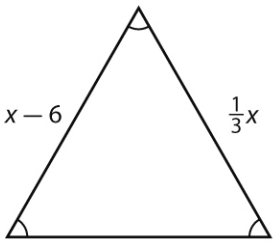


Use the following figures to find the value of *x*.

3. _____



4. _____

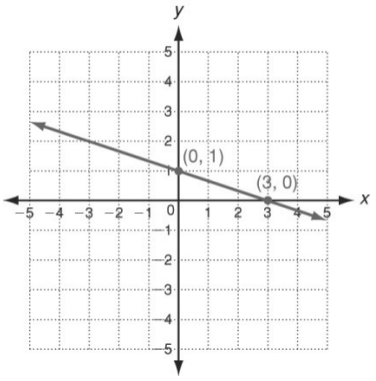


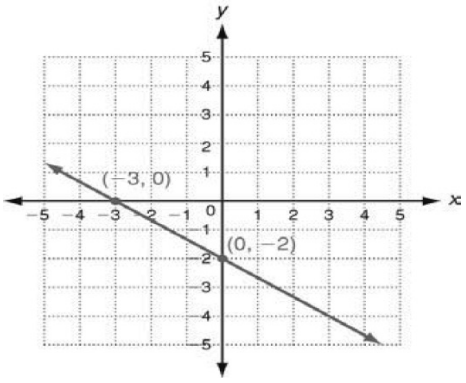
Name _____ Date _____ Class _____

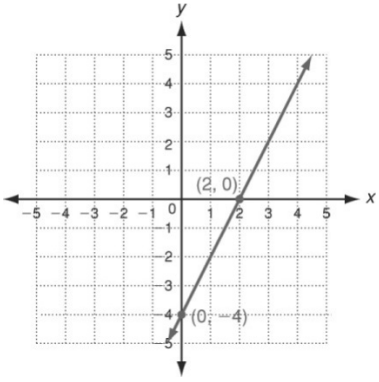
Answer key

ALGEBRA

LESSON 5-2 Reteach

1. *x*-int: 3; *y*-int: –3
2. *x*-int: –1; *y*-int: –2
3. *x*-int: –2; *y*-int: 4
4. 

5. 

6. 

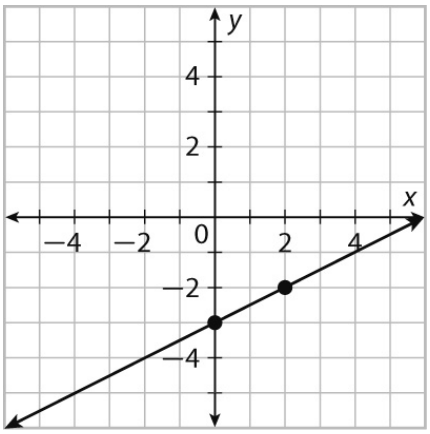
LESSON 5-3 Reteach

Name _____ Date _____ Class _____

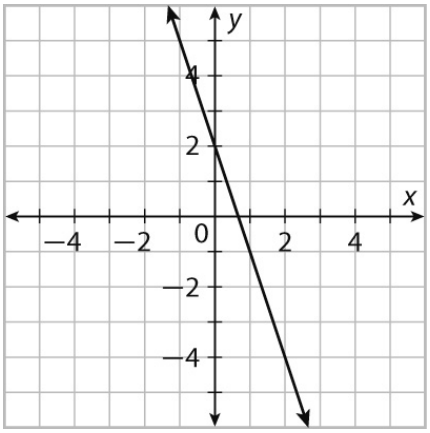
1. 2
2. $-\frac{1}{4}$
3. $\frac{3}{4}$
4. zero
5. undefined
6. zero

LESSON 6-1 Reteach

1. $m = \frac{1}{2}; b = -3$

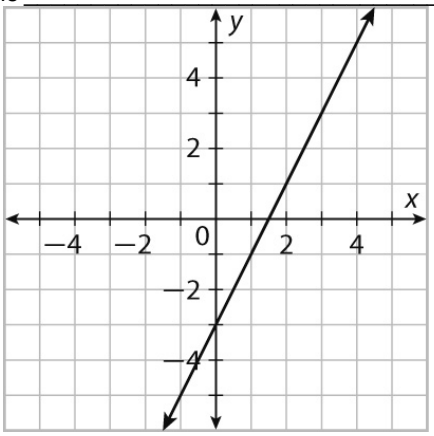


2. $m = -3$; $b = 2$



3. $m = 2$; $b = -3$

Name _____ Date _____ Class _____



LESSON 6-2 Reteach

1. $f(x) = \frac{1}{4}x + 3$
2. $f(x) = -5x$
3. $f(x) = 7x - 2$
4. $f(x) = \frac{1}{2}x + 2$
5. $f(x) = 2x - 2$

LESSON 6-3 Reteach

1. no
2. no
3. no
4. no
5. horizontal
6. neither
7. vertical
8. vertical

GEOMETRY

Reteach 4-2

1. $\angle 2$ and $\angle 7$; $\angle 3$ and $\angle 6$
2. $\angle 2$ and $\angle 3$; $\angle 6$ and $\angle 7$
3. $\angle 1$ and $\angle 3$; $\angle 2$ and $\angle 4$; $\angle 5$ and $\angle 7$; $\angle 6$ and $\angle 8$
4. $\angle 5$ and $\angle 4$; $\angle 1$ and $\angle 8$
5. 65°
6. 80°
7. Any two of $\angle 7$, $\angle 2$, $\angle 5$

Name _____ Date _____ Class _____

Reteach 5-2

1. $\angle C \cong \angle F$
2. $\overline{AB} \cong \overline{DE}$
3. $\angle MKJ \cong \angle MKL$; right
4. $\overline{JK}$; $\overline{LK}$
5. $\triangle JKM \cong \triangle LKM$; ASA

Reteach 5-3

1. 5 cm
2. 90°

Statements	Reasons
1. $\angle 1 \cong \angle 2$; $\overline{AB} \cong \overline{BC}$	1. Given
2. $\overline{DB} \cong \overline{DB}$	2. Reflexive Property of Equality
3. $\triangle ABD \cong \triangle CBD$	3. SAS

Reteach 5-4

1. 5 cm
2. 8 cm

Statements	Reasons
1. $\overline{RU} \cong \overline{TU}$; $\overline{US}$ bisects $\overline{RT}$	1. Given
2. $\overline{RS} \cong \overline{TS}$	2. Definition of bisect
3. $\overline{US} \cong \overline{US}$	3. Reflexive Property of Equality
4. $\triangle RSU \cong \triangle TSU$	4. SSS

Name _____ Date_____ Class _____

Reteach 7-1

1. 100
2. 20
3. 30
4. 80

Reteach 7-2

1. 32
2. 15
3. 5
4. 9

Name _____ Date_____ Class _____