Dear Future Geometry Students and Parents:

The Geometry teachers in the Tigard-Tualatin School District look forward to working with you next year. It is our strong desire to help all students to achieve success in Geometry!

Geometry is more than just a branch of mathematics that examines two- and three-dimensional figures. In Geometry, students are asked to explore topics by investigating, looking for patterns, creating and testing conjectures, and building logical arguments.

Geometry is a fast-paced course and now, with the new Common Core State Standards, Geometry is becoming increasingly challenging as well. Geometry students are now expected to have more advanced levels of conceptual understanding and to use advanced problem-solving skills to tackle more complex Geometry questions.

In order for students to be successful in Geometry, they must have quality understanding of many math concepts, including number sense, use of formulas, writing and solving algebraic equations, and understanding of basic geometric shapes and formulas. Without these skills, students are likely to struggle greatly with the material covered in Geometry. In some cases, students may be withdrawn from Geometry in order to learn the requisite skills in Algebra 1.

The attached Geometry Readiness summer packet is designed for students to review the skills necessary to be successful in Geometry. **Completion of this Geometry Readiness summer packet is highly recommended** so that students are fully prepared for the challenges they will encounter next year in Geometry. Algebra 1 is the foundation for advanced math courses, including Geometry. Students who struggle to complete the Geometry Readiness summer packet, which contains many basic Algebra 1 concepts, should strongly consider enrolling in Algebra 1 for the upcoming school year. With the implementation of the new, more rigorous Common Core State Standards for Algebra 1 and Geometry, next years' students must have an even greater understanding of Algebra 1 than before in order to be successful in Geometry. The placement of students into the appropriate course, whether it be Algebra 1 or Geometry, is critical for student success. Parents can contact their student's counselor to make schedule changes, if needed.

The Geometry Readiness summer packet is designed to include explanations of concepts and example problems so that students can relearn material they may have forgotten. Students can find additional help on the Holt textbook website by reviewing related examples and/or watching video tutorials. The Geometry Readiness summer packet includes textbook section numbers at the top of each page, which correlate to the Holt Algebra 1 (at the beginning of the packet) and the Holt Math 8 (at the end of the packet) textbooks. Use these section numbers to navigate to the appropriate areas of the Holt textbook website, which can be accessed using the following information:

Website: my.hrw.com (Be sure to omit the "www".)

Algebra 1 Help
Username: tuhsalgebra
Password: ilovemath

Math 8 / Basic Geometry Help
Username: ttsdmath8
Password: ilovemath

Students can check their work with the answer key provided at the end of the packet. The answer key is meant to be a tool for students to check their progress and identify areas where further work is needed. Students should be sure to show their work throughout the packet and should not rely solely on the answer key during completion of the packet.

The Geometry Readiness summer packet is also available online on the Tigard-Tualatin School District website.

We look forward to working with fully prepared Geometry students and guiding them through a successful year in Geometry.

Sincerely,

Geometry Teachers of the Tigard-Tualatin School District

Geometry Readiness

Summer Packet

Name:

LESSON 1-1

Review for Mastery

Variables and Expressions

To translate words into algebraic expressions, find words like these that tell you the operation.

+	−	•	÷
add	subtract	multiply	divide
sum	difference	product	quotient
more	less	times	split
increased	decreased	per	ratio

Kenny owns *v* video games. Stan owns 7 more video games than Kenny. Write an expression for the number of video games Stan owns.

v represents the number of video games Kenny owns.

$v + 7$ *Think: The word "more" indicates addition.*

Order does not matter for addition. The expression $7 + v$ is also correct.

Jenny is 12 years younger than Candy. Write an expression for Jenny's age if Candy is *c* years old.

c represents Candy's age.

The word "younger" means "less," which indicates subtraction.

$c - 12$ *Think: Candy is older, so subtract 12 from her age.*

Order does matter for subtraction. The expression $12 - c$ is incorrect.

1. Jared can type 35 words per minute. Write an expression for the number of words he can type in *m* minutes. _____

2. Mr. O'Brien's commute to work is 0.5 hour less than Miss Santos's commute. Write an expression for the length of Mr. O'Brien's commute if Miss Santos's commute is *h* hours. _____

3. Mrs. Knighten bought a box of *c* cookies and split them evenly between the 25 students in her classroom. Write an expression for the number of cookies each student received. _____

4. Enrique collected 152 recyclable bottles, and Latasha collected *b* recyclable bottles. Write an expression for the number of bottles they collected altogether. _____

5. Tammy's current rent is *r* dollars. Next month it will be reduced by $50. Write an expression for next month's rent in dollars. _____

LESSON 1-1

Review for Mastery

Variables and Expressions *continued*

The value of $\square - 9$ depends on what number is placed in the box.

Evaluate $\square - 9$ when 20 is placed in the box.

$\square - 9$

$20 - 9$

11

In algebra, variables are used instead of boxes.

Evaluate $x \div 7$ for $x = 28$.

$x \div 7$

$28 \div 7$

4

Sometimes, the expression has more than one variable.

Evaluate $x + y$ for $x = 6$ and $y = 2$.

$x + y$

$6 + 2$

8

Evaluate $5 + \square$ when each number is placed in the box.

6. 3 _____

7. 5 _____

8. 24 _____

Evaluate each expression for $x = 4$, $y = 6$, and $z = 3$.

9. $x + 15$ _____

10. $3y$ _____

11. $15 - z$ _____

Evaluate each expression for $x = 2$, $y = 18$, and $z = 9$.

12. $x \cdot z$ _____

13. $y - x$ _____

14. $y \div z$ _____

15. $\frac{y}{x}$ _____

16. xy _____

17. $z - x$ _____

LESSON 1-6

Review for Mastery

Order of Operations

When an expression contains more than one operation, the operations must be performed in a certain order.

I. Evaluate powers (exponents).

II. Perform multiplication and division in order from left to right.

III. Perform addition and subtraction in order from left to right.

Simplify $4^2 + 7 - 2 \cdot 5 + 3$.

$\mathbf{4^2} + 7 - 2 \cdot 5 + 3$	*Identify powers.*
$\mathbf{16} + 7 - 2 \cdot 5 + 3$	*Evaluate 4^2.*
$16 + 7 - \mathbf{2 \cdot 5} + 3$	*Identify multiplication and division.*
$16 + 7 - \mathbf{10} + 3$	*Evaluate $2 \cdot 5$.*
$\mathbf{23} - 10 + 3$	*Start at the left and perform each addition and subtraction in order.*
$\mathbf{13} + 3$	
16	

Fill in the blanks to simplify each expression.

1. $3 + 5 \cdot 4 - 2$

   $3 + \_\_\_\_ - 2$

   $\_\_\_\_ - 2$

   $\_\_\_\_$

2. $20 - 4^2 + 3$

   $20 - \_\_\_\_ + 3$

   $\_\_\_\_ + 3$

   $\_\_\_\_$

3. $6 + 12 \div 4 - 8$

   $6 + \_\_\_\_ - 8$

   $\_\_\_\_ - 8$

   $\_\_\_\_$

Simplify each expression.

4. $6 \div 2 \cdot 4 - 3$

5. $18 \div 3^2 - 5 + 2$

6. $3 + 5 \cdot 3 - 8 \div 2$

7. $3 + 3 \div 3 + 3$

8. $7^2 + 4^2 \cdot 3$

9. $6 + 10 \div 2 \cdot 5 - 1$

LESSON 1-6

Review for Mastery

Order of Operations *continued*

Expressions can also include grouping symbols. Parentheses ( ), brackets [ ], and braces { } are the most common grouping symbols. Operations inside grouping symbols must always be done first. If there are grouping symbols inside other grouping symbols, evaluate the innermost group first.

Simplify the expression $6^2 - 3(5 - 1) + 2$.

$6^2 - 3(5 - 1) + 2$

$6^2 - 3 \cdot \mathbf{4} + 2$ *Evaluate 5 – 1.*

$\mathbf{36} - 3 \cdot 4 + 2$ *Evaluate 6^2.*

$36 - \mathbf{12} + 2$ *Evaluate 3 • 4.*

$\mathbf{24} + 2$ *Add and subtract from left to right.*

26

The symbols shown at right are also treated as grouping symbols.

Symbol	Example
Absolute-value	$\lvert 2 - 3 \rvert$
Radical	$\sqrt{3 + 6}$
Fraction Bar	$\frac{2 + 7}{4 - 1}$

Simplify each expression.

10. $2^2 + 6\,(8 - 5) \div 2$

11. $\dfrac{(3 + 2)(4 + 3) + 5^2}{6 - 2^2}$

12. $4(3 - \lvert 2 - 6 \rvert + 5)$

13. If a right triangle has legs of lengths a and b, then the length of its hypotenuse can be found using the expression $\sqrt{a^2 + b^2}$. Find the length of the hypotenuse of a right triangle whose legs measure 11 cm and 14 cm. Round your final answer to the nearest tenth.

LESSON 1-7

Review for Mastery

Simplifying Expressions

The following properties make it easier to do mental math.

Property	Addition	Multiplication
Commutative Property	$3 + 4 = 4 + 3$	$2 \cdot 5 = 5 \cdot 2$
Associative Property	$(3 + 4) + 5 = 3 + (4 + 5)$	$(2 \cdot 4) \cdot 10 = 2 \cdot (4 \cdot 10)$
Distributive Property	$2(5 + 9) = 2(5) + 2(9)$	

Simplify 14 + 37 + 6.

14 + 37 + **6**	*Identify compatible numbers.*
37 + **14** + **6**	*Use the Commutative Property to rearrange the numbers.*
37 + (14 + 6)	*Use the Associative Property to group the compatible numbers.*
37 + 20	*Add.*
57	

Simplify 5(24).

5(24)	
5(20 + 4)	*"Break apart" 24 into numbers compatible with 5.*
5(20) + 5(4)	*Distribute 5.*
100 + 20	*Multiply.*
120	*Add.*

Use the properties above to simplify each expression.

1. $7 + 36 + 3$

2. $13.2 + 15 + 5 + 1.8$

3. $4 \cdot 9 \cdot 5$

4. $6(32)$

5. $23 \cdot \frac{1}{2} \cdot 200$

6. $4(88)$

LESSON 1-7

Review for Mastery

Simplifying Expressions continued

Terms can be combined only if they are **like terms**. Like terms can have different coefficients, but they must have the same variables raised to the same powers.

Like Terms	Not Like Terms
$4x^2$, $7x^2$	$3m$, $5m^3$
$12y$, $18y$	$12y$, $12xy$
$5ab^2$, $-ab^2$	st^4, $3s^4t$

Simplify $24x^3 - 4x^3$.

$24x^3 - 4x^3$

$20x^3$ *Subtract the coefficients only.*

Simplify $4(x + y) + 5x - 9$.

$\mathbf{4x} + \mathbf{4y} + 5x - 9$ *Distribute 4.*

$4x + \mathbf{5x} + \mathbf{4y} - 9$ *Use the Commutative Property.*

$\mathbf{9x} + 4y - 9$ *Add the like terms 4x and 5x.*

$9x + 4y - 9$ *No other terms are like terms.*

State whether each pair of terms are like terms.

7. $4xy$ and $3xy$

8. $2s^2$ and $5s$

9. $-10a$ and $-10b$

If possible, simplify each expression by combining like terms.

10. $7st - 3st$

11. $10y^3 + 5y - 4y^3$

12. $12x^3 + 6x^4$

Simplify each expression.

13. $3(x + 6) - 2$

14. $7y + 2(y - 5) + y$

LESSON 2-4

Review for Mastery

Solving Equations with Variables on Both Sides

Variables must be collected on the same side of the equation before the equation can be solved.

Solve $10x = 2x - 16$.

		Check:
$10x = 2x - 16$		$10x = 2x - 16$
$-2x \quad -2x$	*Add $-2x$ to both sides.*	$10(-2) \stackrel{?}{=} 2(-2) - 16$
$8x = -16$		$-20 \stackrel{?}{=} -4 - 16$
$\frac{8x}{8} = \frac{-16}{8}$	*Divide both sides by 8.*	$-20 \stackrel{?}{=} -20$ ✓
$x = -2$		

Solve $3x = 5(x + 2)$.

		Check:
$3x = 5x + 10$	*Distribute.*	$3x = 5(x + 2)$
$-5x \quad -5x$	*Add $-5x$ to both sides.*	$3(-5) \stackrel{?}{=} 5(-5 + 2)$
$-2x = 10$		$-15 \stackrel{?}{=} 5(-3)$
$\frac{-2x}{-2} = \frac{10}{-2}$	*Divide both sides by -2.*	$-15 \stackrel{?}{=} -15$ ✓
$x = -5$		

Write the first step you would take to solve each equation.

1. $3x + 2 = 7x$ _____
2. $-4x - 6 = -10x$ _____
3. $15x + 7 = -3x$ _____

Solve each equation. Check your answers.

4. $4x + 2 = 5(x + 10)$
5. $-10 + y + 3 = 4y - 13$
6. $3(t + 7) + 2 = 6t - 2 + 2t$

_____ _____ _____

LESSON 2-4

Review for Mastery

Solving Equations with Variables on Both Sides continued

Some equations have infinitely many solutions. These equations are true for all values of the variable. Some equations have no solutions. There is no value of the variable that will make the equation true.

Solve $-3x + 9 = 4x + 9 - 7x$.

$-3x + 9 = -3x + 9$ *Combine like terms.*

$-3x \quad +3x$ *Add 3x to each side.*

$9 = 9$ • *True statement.*

The solution is the set of all real numbers.

Check any value of x:

Try $x = 4$.

$-3x + 9 = 4x + 9 - 7x$

$-3(4) + 9 \stackrel{?}{=} 4(4) + 9 - 7(4)$

$-12 + 9 \stackrel{?}{=} 16 + 9 - 28$

$-3 \stackrel{?}{=} -3$ •

Solve $2x + 6 + 3x = 5x - 10$.

$2x + 6 + 3x = 5x - 10$

$5x + 6 = 5x - 10$ *Combine like terms.*

$-5x \quad -5x$ *Add −5x to each side.*

$6 = -10$ · *False statement.*

There is no solution.

Check any value of x:

Try $x = 1$.

$2x + 6 + 3x = 5x - 10$

$2(1) + 6 + 3(1) \stackrel{?}{=} 5(1) - 10$

$2 + 6 + 3 \stackrel{?}{=} 5 - 10$

$11 \stackrel{?}{=} -5$ ·

Solve each equation.

7. $x + 2 = x + 4$

8. $-2x + 8 = 2x + 4$

9. $5 + 3g = 3g + 5$

10. $5x - 1 - 4x = x + 7$

11. $2(f + 3) + 4f = 6 + 6f$

12. $3x + 7 - 2x = 4x + 10$

LESSON 2-5

Review for Mastery

Solving for a Variable

Solving for a variable in a formula can make it easier to use that formula. The process is similar to that of solving multi-step equations. Find the operations being performed on the variable you are solving for, and then use inverse operations.

	Operations	Solve using Inverse Operations
$A = lw$ Solve for w.	• w is multiplied by l.	• Divide both sides by l.
$P = 2l + 2w$ Solve for w.	• w is multiplied by 2. • Then $2l$ is added.	• Add $-2l$ to both sides. • Then divide both sides by 2.

The order of the inverse operations is the order of operations in reverse.

The formula $A = \frac{1}{2}bh$ relates the area A of a triangle to its base b and height h. Solve the formula for b.

$A = \frac{1}{2}bh$ — *b is multiplied by* $\frac{1}{2}$.

$\left(\frac{2}{1}\right) \cdot A = \left(\frac{2}{1}\right)\frac{1}{2}bh$ — *Multiply both sides by* $\frac{2}{1}$.

$2A = bh$ — *b is multiplied by h.*

$\frac{2A}{h} = \frac{bh}{h}$ — *Divide both sides by h.*

$\frac{2A}{h} = b$ — *Simplify.*

Solve for the indicated variable.

1. $P = 4s$ for s

2. $a + b + c = 180$ for b

3. $P = \frac{KT}{V}$ for K

The formula $V = \frac{1}{3}lwh$ relates the volume of a square pyramid to its base length l, base width w, and height h.

4. Solve the formula for w.

5. A square pyramid has a volume of 560 in^3, a base length of 10 in., and a height of 14 in. What is its base width?

LESSON 2-5

Review for Mastery

Solving for a Variable continued

Any equation with two or more variables can be solved for any given variable.

Solve $x = \frac{y - z}{10}$ for y.

$x = \frac{y - z}{10}$ — *$y - z$ is divided by 10.*

$10(x) = 10\left(\frac{y - z}{10}\right)$ — *Multiply both sides by 10.*

$10x = y - z$ — *z is subtracted from y. Add z to both sides.*

$+z \quad +z$

$10x + z = y$

Solve $a = b + \frac{c}{d}$ for c.

$a = b + \frac{c}{d}$

$-b \quad -b$ — *Add –b to each side.*

$a - b = \frac{c}{d}$

$d(a - b) = \left(\frac{c}{d}\right)d$ — *Multiply both sides by d.*

$d(a - b) = c$ — *Simplify.*

State the first inverse operation to perform when solving for the indicated variable.

6. $y = x + z$; for z _____

7. $\frac{f + g}{2} = h$; for g _____

8. $t = -3r + \frac{s}{5}$; for s _____

Solve for the indicated variable.

9. $3ab = c$; for a _____

10. $y = x + \frac{z}{3}$; for z _____

11. $\frac{m + 3}{n} = p$; for m _____

LESSON 5-6

Review for Mastery

Slope-Intercept Form

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

$y = mx + b$.

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

A line has a slope of –4 and a *y*-intercept of 3. Write the equation in slope-intercept form.

$y = mx + b$ *Substitute the given values for m and b.*

$y = -4x + 3$

A line has a slope of 2. The ordered pair (3, 1) is on the line. Write the equation in slope-intercept form.

Step 1: Find the *y*-intercept.

$y = mx + b$

$y = 2x + b$ *Substitute the given value for m.*

$1 = 2(3) + b$ *Substitute the given values for x and y.*

$1 = 6 + b$ *Solve for b.*

$\underline{-6} \quad \underline{-6}$

$-5 = b$

Step 2: Write the equation.

$y = mx + b$

$y = 2x - 5$ *Substitute the given value for m and the value you found for b.*

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

1. slope $= \frac{1}{4}$, *y*-intercept $= 3$ _____

2. slope $= -5$, *y*-intercept $= 0$ _____

3. slope $= 7$, *y*-intercept $= -2$ _____

4. slope is 3, (4, 6) is on the line. _____

5. slope is $\frac{1}{2}$, (–2, 8) is on the line. _____

6. slope is –1, (5, –2) is on the line. _____

LESSON 5-6

Review for Mastery

Slope-Intercept Form continued

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.*

$-2x \quad -2x$

$6y = -2x + 12$

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

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

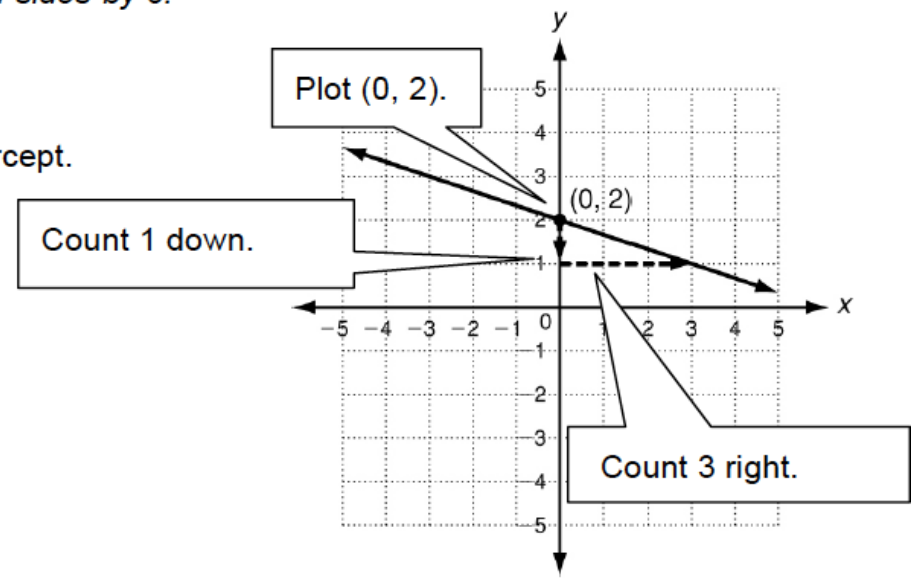
Step 2: Find the slope and *y*-intercept.

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.



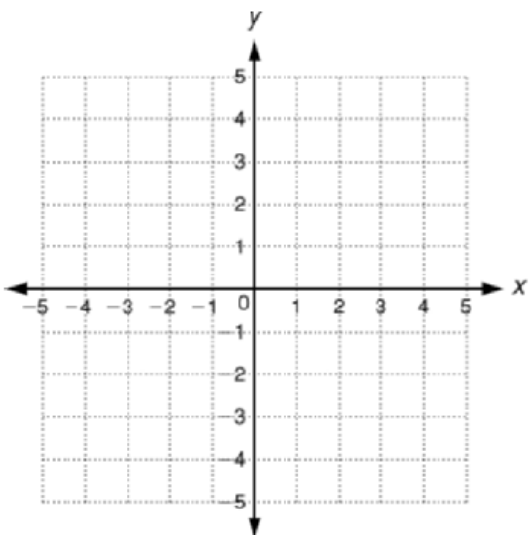
Write the following equations in slope-intercept form.

7. $5x + y = 30$

8. $x - y = 7$

9. $-4x + 3y = 12$

10. Write $2x - y = 3$ in slope-intercept form. Then graph the line.

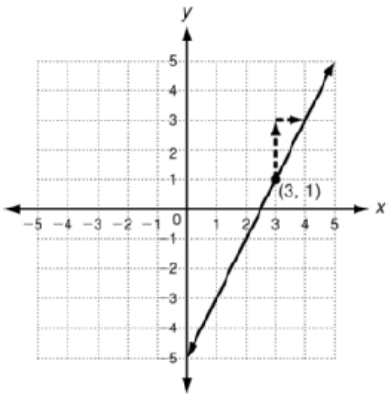


LESSON 5-7

Review for Mastery

Point-Slope Form

You can graph a line if you know the slope and any point on the line.



Graph the line with slope 2 that contains the point (3, 1).

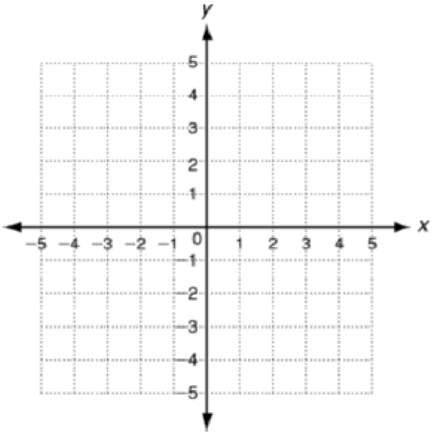
Step 1: Plot (3, 1).

Step 2: The slope is 2 or $\frac{2}{1}$; Count 2 **up** and **1 right** and plot another point.

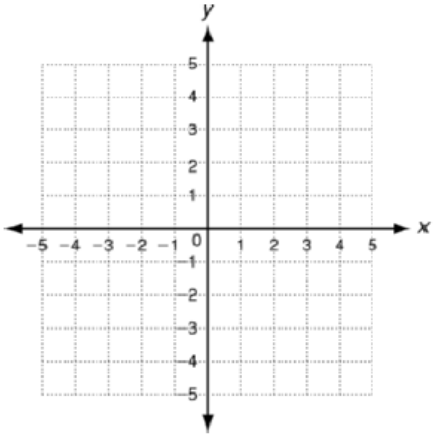
Step 3: Draw a line connecting the points.

Graph the line with the given slope that contains the given point.

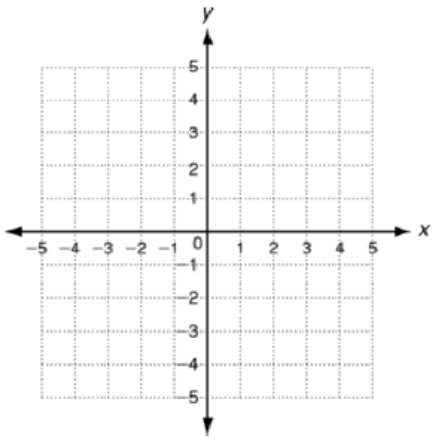
1. slope = $\frac{2}{3}$; (–3, –3)



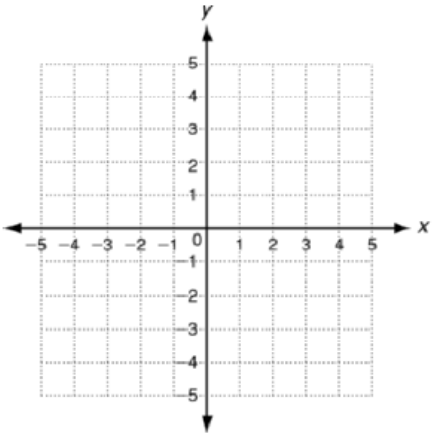
2. slope = $\frac{-1}{2}$; (–2, 4)



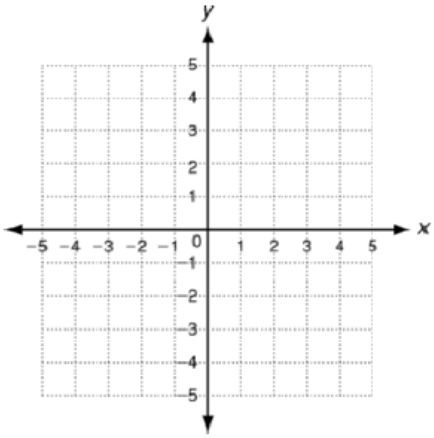
3. slope = 3; (–2, –2)



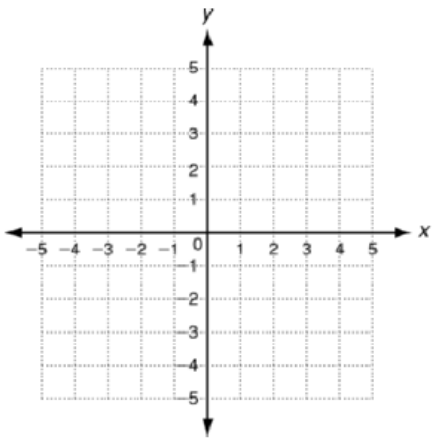
4. slope = $\frac{3}{2}$; (1, 2)



5. slope = –2; (–3, 2)



6. slope = $-\frac{2}{3}$; (2, 4)



LESSON 5-7

Review for Mastery

Point-Slope Form continued

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.

7. slope = −3; (1, 2) is on the line

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

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

10. (1, 2) and (3, 12) are on the line

11. (6, 2) and (–2, –2) are on the line

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

LESSON 5-8

Review for Mastery

Slopes of Parallel and Perpendicular Lines

Two lines are **parallel** if they lie in the same plane and have no points in common. The lines will never intersect.

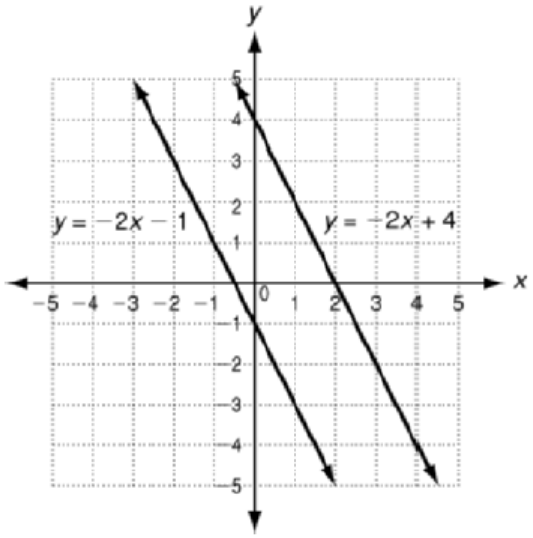
Identify which lines are parallel.

$y = -2x + 4$; $y = 3x + 4$; $y = -2x - 1$

If lines have the same slope, but different y-intercepts, they are parallel lines.

$y = -2x + 4$;	$y = 3x + 4$;	$y = -2x - 1$
$m = -2$,	$m = 3$	$m = -2$
$b = 4$	$b = 4$	$b = -1$

$y = -2x + 4$ and $y = -2x - 1$ are parallel.



Two lines are **perpendicular** if they intersect to form right angles.

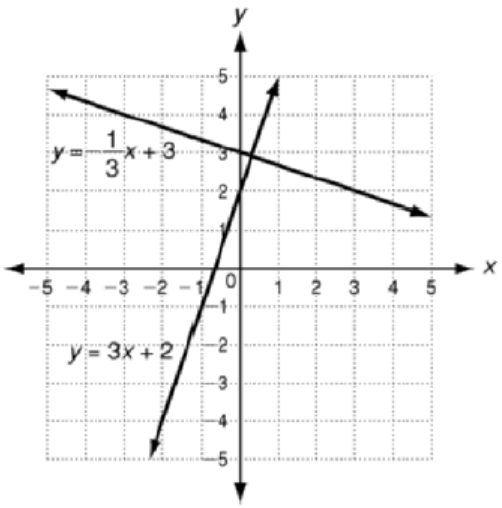
Identify which lines are perpendicular.

If the product of the slopes of two lines is -1, the two lines are perpendicular.

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

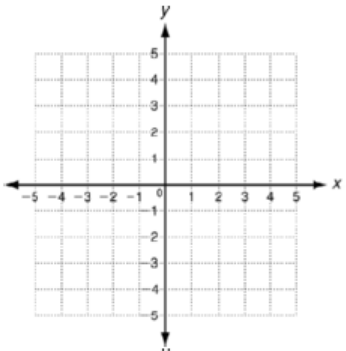
$m = -3$	$m = 3$	$m = -\frac{1}{3}$

Because $3\left(-\frac{1}{3}\right) = -1$, $y = 3x + 2$ and $y = -\frac{1}{3}x + 3$ are perpendicular.



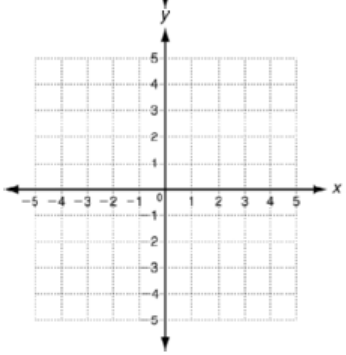
Identify which two lines are parallel. Then graph the parallel lines.

1. $y = 4x + 2$; $y = 2x + 1$; $y = 2x - 3$



Identify which two lines are perpendicular. Then graph the perpendicular lines.

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



LESSON 5-8

Review for Mastery

Slopes of Parallel and Perpendicular Lines continued

Write an equation in slope-intercept form for the line that passes through (2, 4) and is parallel to $y = 3x + 2$.

Step 1: Find the slope of the line.

The slope is 3.

Step 2: Write the equation in point-slope form.

$$y - y_1 = m(x - x_1)$$
$$y - 4 = 3(x - 2)$$

Step 3: Write the equation in slope-intercept form.

$$y - 4 = 3(x - 2)$$
$$y - 4 = 3x - 6$$
$$\underline{+4} \quad \underline{+4}$$
$$y = 3x - 2$$

Write an equation in slope-intercept form for the line that passes through (2, 5) and is perpendicular to $y = \frac{2}{3}x + 2$.

Step 1: Find the slope of the line and the slope for the perpendicular line.

The slope is $\frac{2}{3}$. The slope of the perpendicular line will be $-\frac{3}{2}$.

Step 2: Write the equation (with the new slope) in point-slope form.

$$y - y_1 = m(x - x_1)$$
$$y - 5 = -\frac{3}{2}(x - 2)$$

Step 3: Write the equation in slope-intercept form.

$$y - 5 = -\frac{3}{2}(x - 2)$$
$$y - 5 = -\frac{3}{2}x + 3$$
$$\underline{+5} \quad \underline{\qquad +5}$$
$$y = -\frac{3}{2}x + 8$$

Write the slope of a line that is parallel to, and perpendicular to, the given line.

3. $y = 6x - 3$ parallel: _____ perpendicular: _____

4. $y = \frac{4}{3}x - 1$ parallel: _____ perpendicular: _____

5. Write an equation in slope-intercept form for the line that passes through (6, 5) and is parallel to $y = -x + 4$.

_____

6. Write an equation in slope-intercept form for the line that passes through (8, –1) and is perpendicular to $y = -4x - 7$.

_____

LESSON 6-2

Review for Mastery

Solving Systems by Substitution

You can use substitution to solve a system of equations if one of the equations is already solved for a variable.

Solve $\begin{cases} y = x + 2 \\ 3x + y = 10 \end{cases}$

Step 1: Choose the equation to use as the substitute.

Use the first equation $y = x + 2$ because it is already solved for a variable.

Step 2: Solve by substitution.

$x + 2$

$$3x + y = 10$$

$$3x + (x + 2) = 10 \quad \textit{Substitute } x + 2 \textit{ for } y.$$

$$4x + 2 = 10 \quad \textit{Combine like terms.}$$

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

$$4x = 8$$

$$\frac{4x}{4} = \frac{8}{4}$$

$$x = 2$$

Step 3: Now substitute $x = 2$ back into one of the original equations to find the value of y.

$$y = x + 2$$

$$y = 2 + 2$$

$$y = 4$$

The solution is (2, 4).

Check:

Substitute (2, 4) into both equations.

$y = x + 2$

$4 \stackrel{?}{=} 2 + 2$

$4 \stackrel{?}{=} 4$ ✓

$3x + y = 10$

$3(2) + 4 \stackrel{?}{=} 10$

$6 + 4 \stackrel{?}{=} 10$

$10 \stackrel{?}{=} 10$ ✓

Solve each system by substitution. Check your answer.

1. $\begin{cases} x = y - 1 \\ x + 2y = 8 \end{cases}$

2. $\begin{cases} y = x + 2 \\ y = 2x - 5 \end{cases}$

3. $\begin{cases} y = x + 5 \\ 3x + y = -11 \end{cases}$

4. $\begin{cases} x = y + 10 \\ x = 2y + 3 \end{cases}$

LESSON 6-2

Review for Mastery

Solving Systems by Substitution continued

You may need to solve one of the equations for a variable before solving with substitution.

Solve $\begin{cases} y - x = 4 \\ 2x + 3y = 27. \end{cases}$

Step 1: Solve the first equation for y.

$y - x = 4$

$+x \quad +x$

$y = x + 4$

Step 2: Solve by substitution.

$x + 4$

$2x + 3y = 27$

$2x + 3(x + 4) = 27$ *Substitute $x + 4$ for y.*

$2x + 3x + 12 = 27$ *Distribute.*

$5x + 12 = 27$ *Combine like terms.*

$-12 \quad -12$

$5x = 15$

$\frac{5x}{5} = \frac{15}{5}$

$x = 3$

Step 3: Now substitute $x = 3$ back into one of the original equations to find the value of y.

$y - x = 4$

$y - 3 = 4$

$+3 \quad +3$

$y = 7$

The solution is (3, 7).

Check:

Substitute (3, 7) into both equations.

$y - x = 4$

$7 - 3 \stackrel{?}{=} 4$

$4 \stackrel{?}{=} 4$ ✓

$2x + 3y = 27$

$2(3) + 3(7) \stackrel{?}{=} 27$

$6 + 21 \stackrel{?}{=} 27$

$27 \stackrel{?}{=} 27$ ✓

Solve each system by substitution. Check your answer.

5. $\begin{cases} x - y = -3 \\ 2x + y = 12 \end{cases}$

6. $\begin{cases} y - x = 8 \\ 5x + 2y = 9 \end{cases}$

LESSON 8-3

Review for Mastery

Factoring $x^2 + bx + c$

For additional help, view the example on factoring using the diamond and generic rectangle method:

http://www.youtube.com/watch?v=8swFkWviCjE

When factoring $x^2 + bx + c$:

If c is positive	and b is positive	both factors are positive.
	and b is negative	both factors are negative.

Factor $x^2 + 7x + 10$. Check your answer.

$$x^2 + 7x + 10$$

Need factors of **10** that sum to **7**.

Factors of 10	Sum
1 and 10	11 ×
2 and 5	7 ✓

$(x + 2)(x + 5)$

Check:

$(x + 2)(x + 5) = x^2 + 5x + 2x + 10$

$= x^2 + 7x + 10$ ✓

Factor $x^2 - 9x + 18$. Check your answer.

$$x^2 - 9x + 18$$

Need factors of **18** that sum to **–9**.

Factors of 18	Sum
–1 and –18	–19 ×
–2 and –9	–11 ×
–3 and –6	–9 ✓

$(x - 3)(x - 6)$

Check:

$(x - 3)(x - 6) = x^2 - 6x - 3x + 18$

$= x^2 - 9x + 18$ ✓

Factor the trinomial by filling in the blanks below.

1. $x^2 + 10x + 16$

Need factors of ☐, that sum to ☐.

Factors	Sum
☐ and ☐	☐
☐ and ☐	☐
☐ and ☐	☐

2. $x^2 - 9x + 20$

Need factors of ☐, that sum to ☐.

Factors	Sum
☐ and ☐	☐
☐ and ☐	☐
☐ and ☐	☐

Factor each trinomial.

3. $x^2 + 13x + 12$

4. $x^2 + 15x + 50$

5. $x^2 - 13x + 36$

LESSON 8-3

Review for Mastery

Factoring $x^2 + bx + c$ continued

For additional help, view the example on factoring using the diamond and generic rectangle method:

http://www.youtube.com/watch?v=8swFkWviCjE

When factoring $x^2 + bx + c$:

If c is negative	and b is positive	the larger factor must be positive.
	and b is negative	the larger factor must be negative.

Factor $x^2 + 8x - 20$. Check your answer.

$$x^2 + 8x - 20$$

Need factors of **–20** that sum to **8**.
(Make larger factor positive.)

Factors of –20	Sum
–1 and 20	19 ×
–2 and 10	8 ✓
–4 and 5	1 ×

$$(x - 2)(x + 10)$$

Check:

$$(x - 2)(x + 10) = x^2 + 10x - 2x - 20$$
$$= x^2 + 8x - 20 \checkmark$$

Factor $x^2 - 3x - 28$. Check your answer.

$$x^2 + 3x - 28$$

Need factors of **–28** that sum to **–3**.
(Make larger factor negative.)

Factors of –28	Sum
1 and –28	–27 ×
2 and –14	–12 ×
4 and –7	–3 ✓

$$(x + 4)(x - 7)$$

Check:

$$(x + 4)(x - 7) = x^2 - 7x - 4x + 28$$
$$= x^2 - 3x + 28 \checkmark$$

Factor the trinomial by filling in the blanks below.

6. $x^2 + x - 20$

Need factors of ☐, that sum to ☐.

Factors	Sum
☐ and ☐	☐
☐ and ☐	☐
☐ and ☐	☐

7. $x^2 - 3x - 4$

Need factors of ☐, that sum to ☐.

Factors	Sum
☐ and ☐	☐
☐ and ☐	☐

Factor each trinomial.

8. $x^2 + 3x - 18$

9. $x^2 - 5x - 14$

10. $x^2 + 4x - 45$

LESSON 8-4

Review for Mastery

Factoring $ax^2 + bx + c$

For additional help, view the example on factoring using the diamond and generic rectangle method:

http://www.youtube.com/watch?v=8swFkWviCjE

When factoring $ax^2 + bx + c$, first find factors of a and c. Then check the products of the inner and outer terms to see if the sum is b.

Factor $2x^2 + 11x + 15$. Check your answer.

$2x^2 + 11x + 15 = (\square x + \square)(\square x + \square)$

Factors of 2	Factors of 15	Outer + Inner
1 and 2	1 and 15	$1 \cdot 15 + 2 \cdot 1 = 17$ ×
1 and 2	15 and 1	$1 \cdot 1 + 2 \cdot 15 = 31$ ×
1 and 2	5 and 3	$1 \cdot 3 + 2 \cdot 5 = 13$ ×
1 and 2	3 and 5	$1 \cdot 5 + 2 \cdot 3 = 11$ ✓

$(x + 3)(2x + 5)$

Check:

$(x + 3)(2x + 5) = 2x^2 + 5x + 6x + 15$

$= 2x^2 + 11x + 15$ ✓

Factor $3x^2 - 23x + 14$. Check your answer.

$3x^2 - 23x + 14 = (\square x + \square)(\square x + \square)$

Factors of 3	Factors of 14	Outer + Inner
1 and 3	–1 and –14	$1 \cdot (-14) + 3 \cdot (-1) = -17$ ×
1 and 3	–14 and –1	$1 \cdot (-1) + 3 \cdot (-14) = -42$ ×
1 and 3	–2 and –7	$1 \cdot (-7) + 3 \cdot (-2) = -13$ ×
1 and 3	–7 and –2	$1 \cdot (-2) + 3 \cdot (-7) = -23$ ✓

$(x - 7)(3x - 2)$

Check:

$(x - 7)(3x - 2) = 3x^2 - 2x - 21x + 14$

$= 3x^2 + 23x + 14$ ✓

1. Factor $5x^2 + 12x + 4$ by filling in the blanks below.

Factors	Factors	Outer + Inner
☐ and ☐	☐ and ☐	☐ • ☐ + ☐ • ☐ = ☐
☐ and ☐	☐ and ☐	☐ • ☐ + ☐ • ☐ = ☐
☐ and ☐	☐ and ☐	☐ • ☐ + ☐ • ☐ = ☐

Factor each trinomial.

2. $3x^2 + 7x + 4$

3. $2x^2 - 13x + 21$

4. $4x^2 + 8x + 3$

LESSON 8-4

Review for Mastery

Factoring $ax^2 + bx + c$ continued

For additional help, view the example on factoring using the diamond and generic rectangle method:

http://www.youtube.com/watch?v=8swFkWviCjE

When c is negative, one factor of c is positive and one is negative. You can stop checking factors when you find the factors that work.

Factor $2x^2 + 7x - 15$. Check your answer.

$2x^2 + 7x - 15 = (\square x + \square)(\square x + \square)$

Factors of 2	Factors of –15	Outer + Inner
1 and 2	–3 and 5	$1 \cdot 5 + 2 \cdot (-3) = -1$ ×
1 and 2	3 and –5	$1 \cdot (-5) + 2 \cdot 3 = 1$ ×
1 and 2	–5 and 3	$1 \cdot 3 + 2 \cdot (-5) = -7$ ×
1 and 2	5 and –3	$1 \cdot (-3) + 2 \cdot 5 = 7$ ✓

$(x + 5)(2x - 3)$

Check:

$(x + 5)(2x - 3) = 2x^2 - 3x + 10x - 15$

$= 2x^2 + 7x - 15$

When a is negative, factor out –1. Then factor as shown previously.

Factor $-5x^2 + 28x + 12$. Check your answer.

$-5x^2 + 28x + 12$

$-1(5x^2 - 28x - 12) = -1(\square x + \square)(\square x + \square)$

Factors of 5	Factors of –12	Outer + Inner
1 and 5	–2 and 6	$1 \cdot 6 + 5 \cdot (-2) = -4$ ×
1 and 5	2 and –6	$1 \cdot (-6) + 5 \cdot 2 = 4$ ×
1 and 5	6 and –2	$1 \cdot (-2) + 5 \cdot 6 = 28$ ×
1 and 5	–6 and 2	$1 \cdot 2 + 5 \cdot (-6) = -28$ ✓

$-1(x - 6)(5x + 2)$

Check:

$-1(x - 6)(5x + 2)$

$= -1(5x^2 + 2x - 30x - 12)$

$= -1(5x^2 - 28x - 12)$

$= -5x^2 + 28x + 12$

Factor each trinomial.

5. $3x^2 - 7x - 20$

6. $5x^2 + 34x - 7$

7. $-2x^2 + 3x + 5$

LESSON 9-6

Review for Mastery

Solving Quadratic Equations by Factoring

Quadratic Equations can be solved by factoring and using the Zero Product Property.

If the product of two quantities equals zero, at least one of the quantities must equal zero.

If $(x)\,(y) = 0$, then

$x = 0$ or $y = 0$

If $(x + 3)\,(x - 2) = 0$, then

$x + 3 = 0$ or $x - 2 = 0$

Use the Zero Product Property to solve $(x + 8)\,(x - 5) = 0$. Check your answer.

$(x + 8)\,(x - 5) = 0$

$x + 8 = 0$ or $x - 5 = 0$

$-8 \quad -8 \qquad +5 \quad +5$

$x = -8 \qquad x = 5$

Check

$x = -8$

$(x + 8)\,(x - 5) = 0$	
$(-8 + 8)\,(-8 - 5)$	0
$(0)\,(-13)$	0
0	0 ✓

$x = 5$

$(x + 8)\,(x - 5) = 0$	
$(5 + 8)\,(5 - 5)$	0
$(13)\,(0)$	0
0	0 ✓

Use the Zero Product Property to solve each equation by filling in the boxes below. Then find the solutions. Check your answer.

1. $(x - 6)\,(x - 3) = 0$

   ☐ $= 0$ or ☐ $= 0$

2. $(x + 8)\,(x - 5) = 0$

   ☐ $= 0$ or ☐ $= 0$

3. $3x(x - 7) = 0$

   ☐ $= 0$ or ☐ $= 0$

4. $(2x - 3)\,(x + 9) = 0$

   ☐ $= 0$ or ☐ $= 0$

5. $(5x - 1)\,(x + 2) = 0$

6. $(x + 4)\,(2 - x) = 0$

LESSON 9-6

Review for Mastery

Solving Quadratic Equations by Factoring continued

Sometimes you need to factor before using the Zero Product Property.

Solve $x^2 + 4x - 5 = 0$ by factoring.

$$x^2 + 4x - 5 = 0$$
$$(x + 5)(x - 1) = 0$$

$x + 5 = 0$ or $x - 1 = 0$

$-5 \quad -5$ $\quad +1 \quad +1$

$x = -5$ $\quad x = 1$

Check:

$x = -5$

$x^2 + 4x - 5 = 0$	
$(-5^2) + 4(-5) - 5$	0
$25 - 20 - 5$	0
0	0 ✓

$x = 1$

$x^2 + 4x - 5 = 0$	
$(1^2) + 4(1) - 5$	0
$1 + 4 - 5$	0
0	0 ✓

Solve $3x^2 - 12x + 12 = 0$ by factoring.

$$3x^2 - 12x + 12 = 0$$
$$3(x^2 - 4x + 4) = 0$$
$$3(x - 2)(x - 2) = 0$$

$3 \neq 0$ or $x - 2 = 0$

$+2 \quad +2$

$x = 2$

Check:

$x = 2$

$3x^2 - 12x + 12 = 0$	
$3(2)^2 - 12(2) + 12$	0
$3(4) - 24 + 12$	0
$12 - 24 + 12$	0
0	0 ✓

Solve each quadratic equation by factoring.

7. $x^2 + x - 12 = 0$

8. $x^2 + 10x + 25 = 0$

9. $x^2 + 7x - 8 = 0$

10. $x^2 - 49 = 0$

11. $4x^2 + 25x = 0$

12. $5x^2 - 15x - 50 = 0$

13. $x^2 + 10x + 21 = 0$

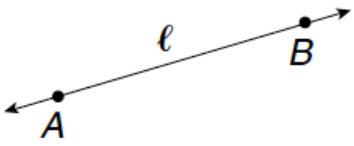
14. $4 - x^2 = 0$

15. $3x^2 - 6x - 9 = 0$

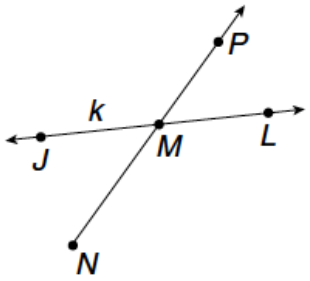
LESSON 7-1

Reteach

Points, Lines, Planes, and Angles

Figure	Description	Diagram	Notation Write	Notation Read
Line	an infinite collection of points with no beginning and no end		$\overleftrightarrow{AB}$ or $\overleftrightarrow{BA}$ or ℓ	line AB, line BA, line ℓ
Line Segment	part of a line, with two endpoints		$\overline{AB}$ or $\overline{BA}$	line segement AB line segment BA
Ray	part of a line, with one endpoint		$\overrightarrow{AB}$	ray AB

Use the diagram, to name each type of figure.



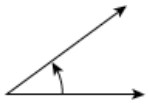
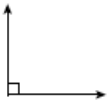
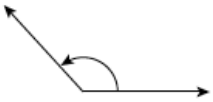
1. $\overrightarrow{MP}$ _____

2. k _____

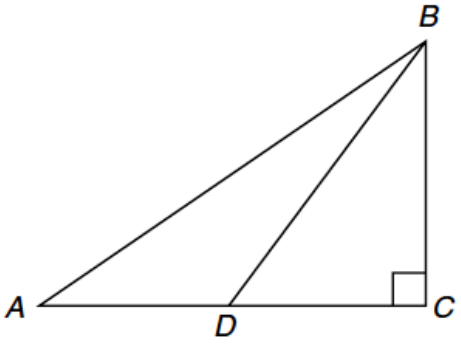
3. $\overline{MN}$ _____

4. $\overline{LJ}$ _____

5. $\overleftrightarrow{JL}$ _____

Acute Angle	Right Angle	Obtuse Angle	Straight Angle
			
Measures between 0° and 90°	Measures exactly 90°	Measures between 90° and 180°	Measures exactly 180°.

Use the diagram to name each type of angle.



6. $\angle BCD$ _____

7. $\angle BAD$ _____

8. $\angle BDA$ _____

9. $\angle CDA$ _____

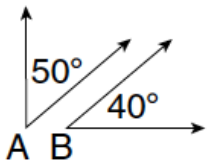
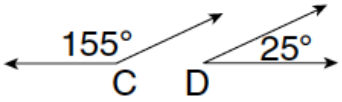
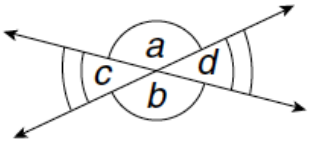
10. $\angle BDC$ _____

11. $\angle ABC$ _____

LESSON 7-1

Reteach

Points, Lines, Planes, and Angles (continued)

Complementary Angles	Supplementary Angles	Vertical Angles
		
Two angles whose measures have a sum of 90°.	Two angles whose measures have a sum of 180°.	Intersecting lines form two pairs of vertical angles.
$\angle A$ and $\angle B$ are complementary angles.	$\angle C$ and $\angle D$ are supplementary angles.	$\angle a$ and $\angle b$, $\angle c$ and $\angle d$ are pairs of vertical angles.

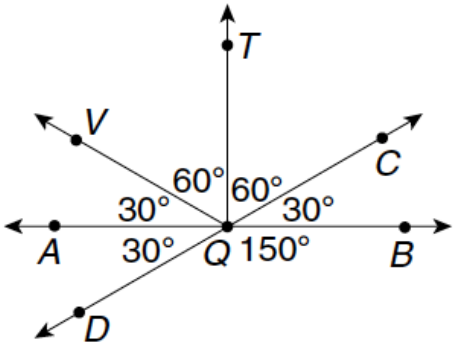
Use the diagram to complete.

12. Since $\angle AQC$ and $\angle DQB$ are formed by intersecting lines, $\overleftrightarrow{AQB}$ and $\overleftrightarrow{CQD}$, they are:

_____

13. The sum of the measures of $\angle AQV$ and $\angle VQT$ is: _____
So, these angles are:

_____

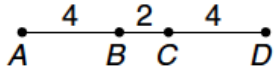


14. The sum of the measures of $\angle AQC$ and $\angle CQB$ is: _____

So, these angles are: _____

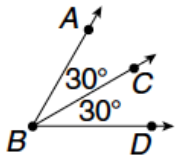
Congruent figures have the same size and shape.
The symbol ≅ means *is congruent to*.

Complete these statements about congruence.



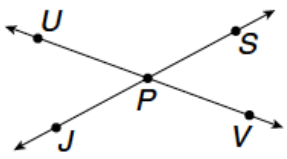
15. Since $AC = 6$ units and $BD = 6$ units,

then $\overline{AC}$ _____ $\overline{BD}$.



16. Since $m\angle ABC = 30°$ and $m\angle CBD = 30°$

then $\angle ABC$ _____.



17. Since vertical angles are congruent,

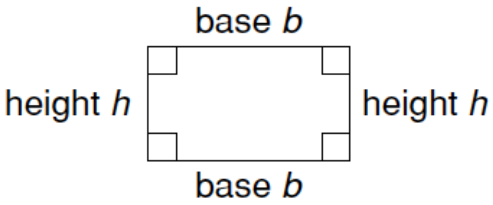
then $\angle UPJ$ _____.

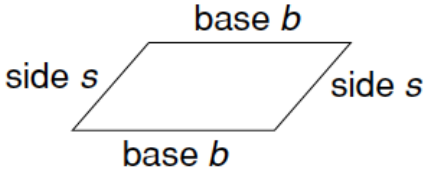
LESSON 8-1

Reteach

Perimeter and Area of Rectangles and Parallelograms

Perimeter = distance around a figure.
To find the perimeter of a figure, add the lengths of all its sides.



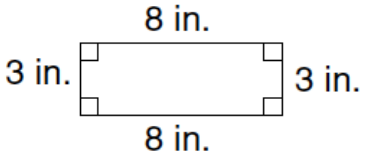


Perimeter of Rectangle
$= b + h + b + h$
$= \mathbf{2b + 2h}$

Perimeter of Parallelogram
$= b + s + b + s$
$= \mathbf{2b + 2s}$

Complete to find the perimeter of each figure.

1.



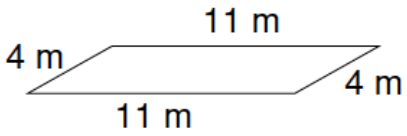
Perimeter of rectangle
$= 2b + 2h$

$= 2(\_\_\_\_) + 2(\_\_\_\_)$

$= \_\_\_\_ + \_\_\_\_$

$= \_\_\_\_$ in.

2.



Perimeter of parallelogram
$= 2b + 2s$

$= 2(\_\_\_\_) + 2(\_\_\_\_)$

$= \_\_\_\_ + \_\_\_\_$

$= \_\_\_\_$ m

Find the perimeter of each.

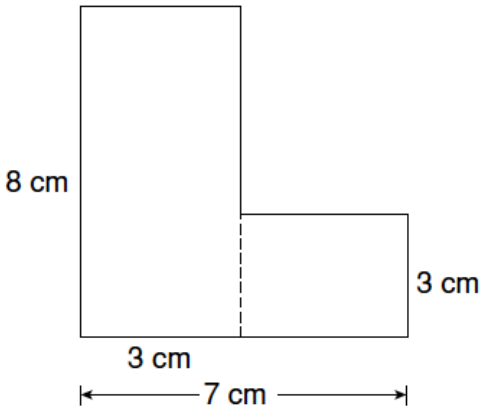
3. Large rectangle

$P = \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_ = \_\_\_\_$

4. Small rectangle

$P = \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_ = \_\_\_\_$

5. The combined rectangles as shown in the figure.



$P = \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_ + \_\_\_\_ = \_\_\_\_$

LESSON 8-1

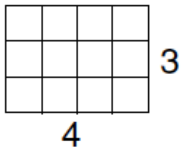
Reteach

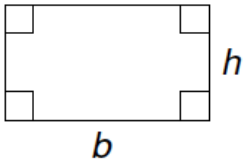
Perimeter and Area of Rectangles and Parallelograms (cont.)

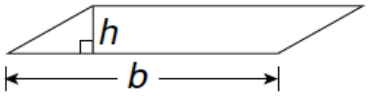
Area = number of square units contained inside a figure.

The rectangle contains 12 square units.

Area of rectangle = 4 × 3 = 12 units^2



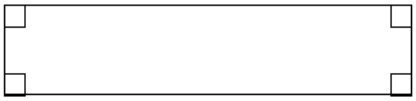




Area of Rectangle = ***b*** × ***h*** **Area of Parallelogram** = ***b*** × ***h***

Complete to find the area of each figure.

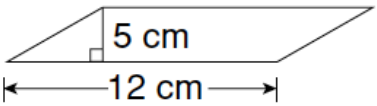
6.



Area of rectangle
= *b* × *h*

= _____ × _____ = _____ in^2

7.



Area of parallelogram *WXYZ*
= *b* × *h*

= _____ × _____ = _____ cm^2

8. In the rectangle graphed on the coordinate plane:

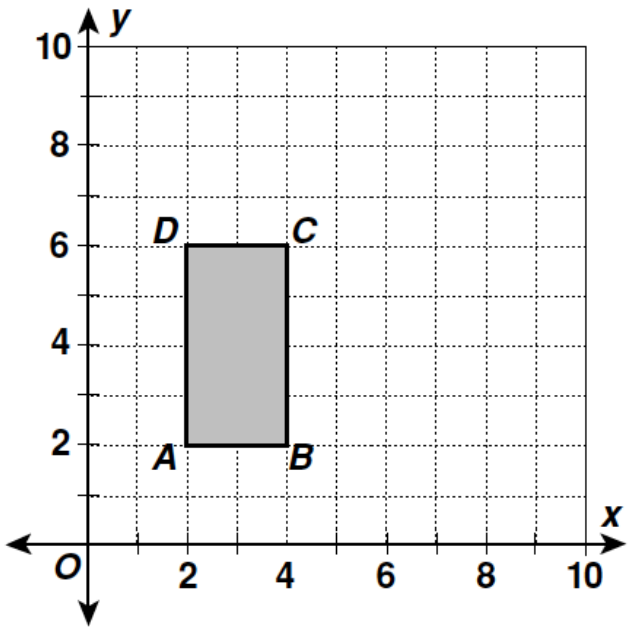
base = _____ units

height = _____ units.

Area of rectangle
= base × height

= _____ × _____

= _____ units^2



LESSON 8-2

Reteach

Perimeter and Area of Triangles and Trapezoids

To find the perimeter of a figure, add the lengths of all its sides.

Complete to find the perimeter of each figure.

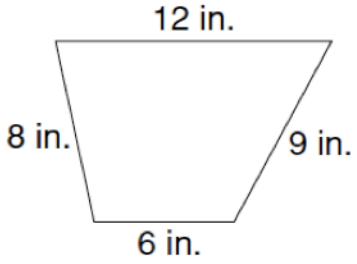
1.

Perimeter of triangle

= _____ + _____ + _____

= _____ cm

2.



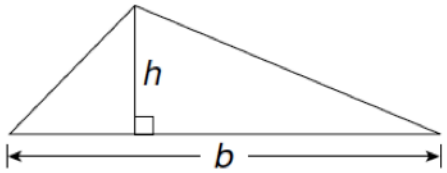
Perimeter of trapezoid

= _____ + _____ + _____ + _____

= _____ in.

Area of Triangle $= \frac{1}{2}bh$

The area of a triangle is one-half the product of a base length b and the height h drawn to that base.



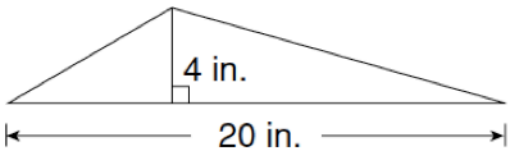
Complete to find the area of each triangle.

3. Area of triangle

$= \frac{1}{2}bh$

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

$= \frac{1}{2} \times$ _____ = _____ in^2



4. In the triangle graphed on the coordinate plane:

base = 10 − 3 = _____ units

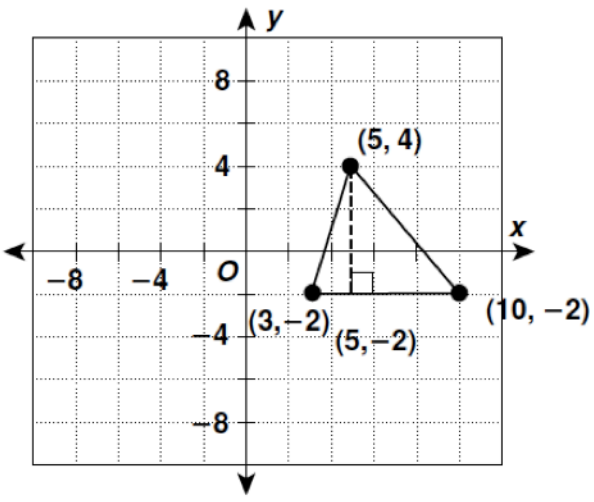
height = 4 − (−2) = _____ units.

Area of triangle

$= \frac{1}{2} \times$ base $\times$ height

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

$= \frac{1}{2} \times$ _____ = _____ $units^2$



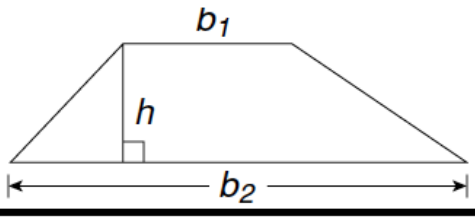
LESSON 8-2

Reteach

Perimeter and Area of Triangles and Trapezoids (continued)

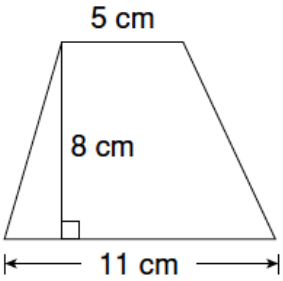
Area of Trapezoid $= \frac{1}{2}h(b_1 + b_2)$

The area of a trapezoid is one-half the height h times the sum of the base lengths b_1 and b_2.



Complete to find the area of each trapezoid.

5.



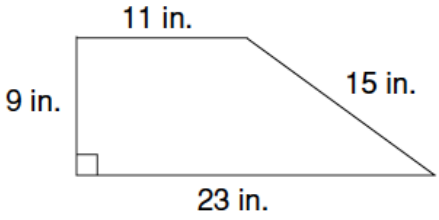
Area of trapezoid

$= \frac{1}{2}h(b_1 + b_2)$

$= \frac{1}{2} \times$ _____ $\times$ (_____ + _____)

= _____ $\times$ (_____) = _____ cm^2

6.



Area of trapezoid

$= \frac{1}{2}h(b_1 + b_2)$

$= \frac{1}{2} \times$ _____ $\times$ (_____ + _____)

= _____ $\times$ (_____) = _____ in^2

7. In the trapezoid graphed on coordinate plane:

$base_1 = 8 - 4 =$ _____ units

$base_2 = 11 - 2 =$ _____ units

height $= 6 - 2 =$ _____ units.

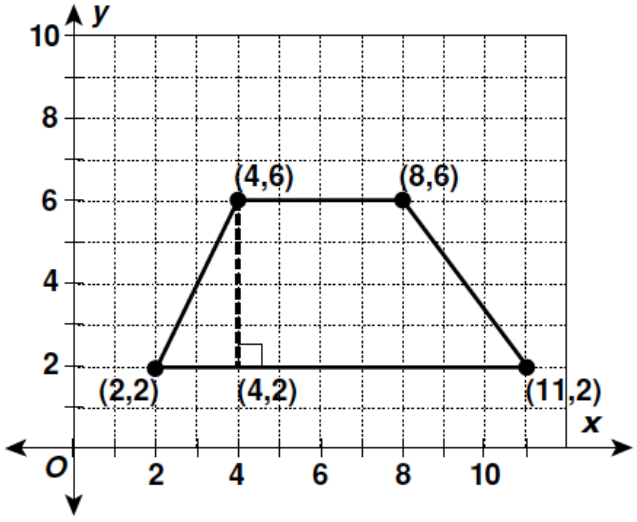
Area of trapezoid

$= \frac{1}{2} \times$ height $\times$ ($base_1$ + $base_2$)

$= \frac{1}{2} \times$ _____ $\times$ (_____ + _____)

= _____ $\times$ (_____)

= _____ $units^2$



CHAPTER 8-3

Reteach

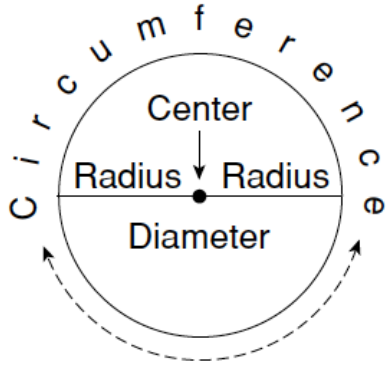
Circles

A **radius** connects the **center** of a **circle** to any point on the circle.

A **diameter** passes through the center and connects two points on the circle.

diameter d = twice radius r

$$\boldsymbol{d = 2r}$$



Circumference is the distance around a circle.

(The symbol ≈ means *is approximately equal to*.)

Circumference $C \approx 3$(diameter d)

$$\boldsymbol{C = \pi d}$$

For a circle with diameter = 8 in.

$C = \pi d$

$C = \pi(8)$

$C = 8\pi$ in.

$\pi \approx 3.14$ $C \approx 8(3.14) \approx 25.12$ in.

Circumference $C \approx 6$(radius r)

$$\boldsymbol{C = 2\pi r}$$

For a circle with radius = 8 in.

$C = 2\pi r$

$C = 2\pi(8)$

$C = 16\pi$ in.

$\pi \approx 3.14$ $C \approx 16(3.14) \approx 50.24$ in.

Find the circumference of each circle, exactly in terms of π and approximately when $\pi = 3.14$.

1. diameter = 15 ft

$C = \pi d$

$C = \pi($_____$) =$ _____ ft

$C \approx 3.14($_____$) \approx$ _____ ft

2. radius = 4 m

$C = 2\pi r$

$C = 2\pi($_____$) =$ _____ m

$C \approx$ _____$(3.14) \approx$ _____ m

Area $A \approx 3$(the square of radius r)

$$\boldsymbol{A = \pi r^2}$$

For a circle with radius = 5 in.: $A = \pi r^2 = \pi(5^2) = 25\pi$ in^2

$A \approx 25(3.14) \approx 78.5$ in^2

Find the area of each circle, exactly in terms of π and approximately when $\pi = 3.14$.

3. radius = 9 ft

$A = \pi r^2$

$A = \pi($_____$) =$ _____ ft^2

$A \approx$ _____$(3.14) \approx$ _____ ft^2

4. diameter = 10 m, radius = _____ m

$A = \pi r^2$

$A = \pi($_____$) =$ _____ m^2

$A \approx$ _____$(3.14) \approx$ _____ m^2

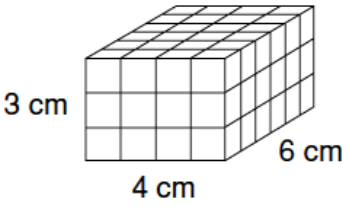
LESSON 8-5

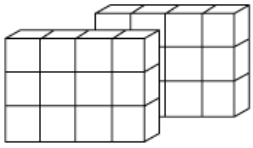
Reteach

Volume of Prisms and Cylinders

Volume = number of cubic units inside a solid figure

To find the volume of this solid figure:





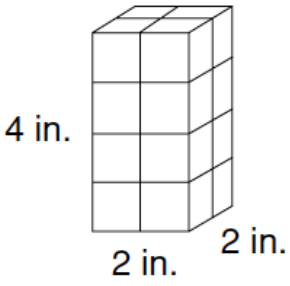
Count the number of cubic centimeters in one "slice" of the figure.

$4 \times 3 = 12$

Multiply by the number of "slices." $12 \times 6 = 72$ cm^3

Complete to find the volume of each solid figure.

1.



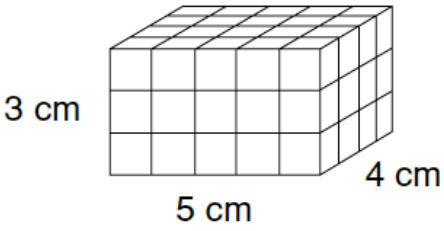
number in^3 in a slice

= _____ × _____ = _____

number of slices = _____

volume = _____ in^3

2.



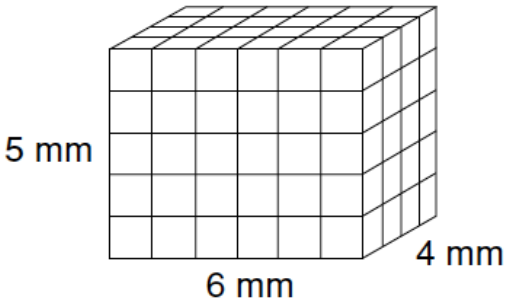
number cm^3 in a slice

= _____ = _____

number of slices = _____

volume = _____ cm^3

3.



number mm^3 in a slice

= _____ = _____

number of slices = _____

volume = _____ mm^3

LESSON 8-5

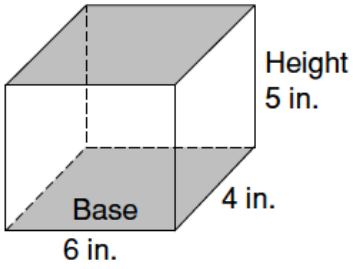
Reteach

Volume of Prisms and Cylinders (continued)

Prism: solid figure named for the shape of its two congruent bases

Volume V of a prism = area of base B × height h

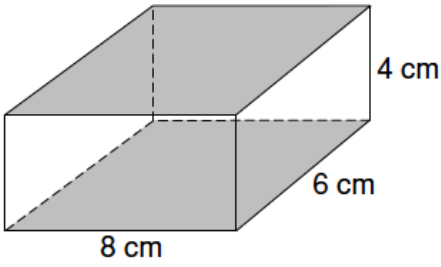
$$V = Bh$$
$$V = (6 \times 4)5$$
$$V = 24(5)$$
$$V = 120 \text{ in}^3$$



Rectangular Prism

Complete to find the volume of each prism.

4. rectangular prism



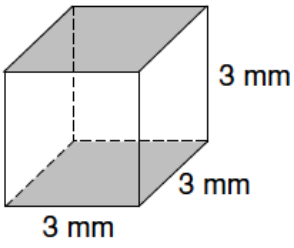
base is a rectangle

$V = Bh$

$V = (\_\_\_ \times \_\_\_) \times \_\_\_$

$= \_\_\_\_ \text{ cm}^3$

5. cube



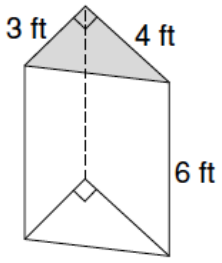
base is a _____

$V = Bh$

$V = (\_\_\_ \times \_\_\_) \times \_\_\_$

$= \_\_\_\_ \text{ mm}^3$

6. triangular prism



base is a _____

$V = \frac{1}{2} Bh$

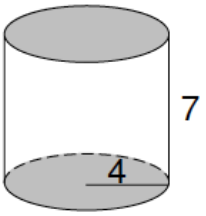
$V = \frac{1}{2}(\_\_\_ \times \_\_\_)$

$\times \_\_\_ = \_\_\_\_ \text{ ft}^3$

Cylinder: solid figure with a circular base

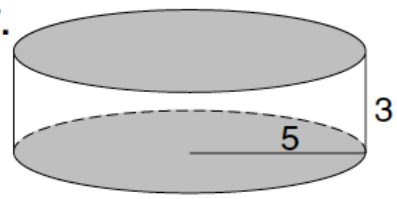
Volume V of a cylinder = area of base B × height h

$$V = Bh$$
$$V = (\pi \times 4^2)7 = (16\pi)7$$
$$V = 112\pi$$
$$V \approx 112(3.14) \approx 351.7 \text{ units}^3$$



Complete to find the volume of the cylinder.

7.



$V = Bh$

$V = (\pi \times \_\_\_\_\_) \times \_\_\_\_\_$

$V = \_\_\_\_\_ \approx \_\_\_\_\_ \text{ units}^3$

Geometry Readiness Summer Packet Answers

Section 1-1

1. $35m$
2. $h - 0.5$
3. $c \div 25$
4. $152 + b$
5. $r - 50$
6. 8
7. 10
8. 29
9. 19
10. 18
11. 12
12. 18
13. 16
14. 2
15. 9
16. 36
17. 7

Section 1-6

1. 20; 23; 21
2. 16; 4; 7
3. 3; 9; 1
4. 9
5. -1
6. 14
7. 7
8. 97
9. 30
10. 13
11. 30
12. 16
13. 17.8 cm

Section 1-7

1. 46
2. 35
3. 180
4. 192
5. 2300
6. 352
7. yes
8. no
9. no
10. $4st$
11. $6y^3 + 5y$
12. $12x^3 + 6x^4$
13. $3x + 16$
14. $10y - 10$

Section 2-4

1. possible answer: add $-3x$ to each side
2. possible answer: add $4x$ to each side
3. possible answer: add $-15x$ to each side
4. -48
5. 2
6. 5
7. no solution
8. 1
9. all real numbers
10. no solution
11. all real numbers
12. -1

Section 2-5

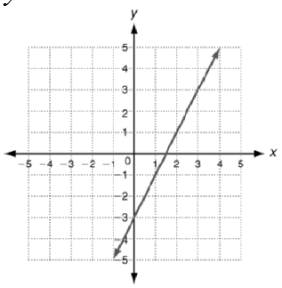
1. $s = \frac{P}{4}$
2. $b = 180 - a - c$
3. $K = \frac{VP}{T}$
4. $w = \frac{3V}{lh}$
5. 12 in.
6. add $-x$ to both sides
7. multiply both sides by 2
8. add $3r$ to both sides
9. $a = \frac{c}{3b}$
10. $z = 3(y - x)$
11. $m = pn - 3$

Section 5-6

1. $y = \frac{1}{4}x + 3$
2. $y = -5x$
3. $y = 7x - 2$
4. $y = 3x - 6$
5. $y = \frac{1}{2}x + 9$
6. $y = -x + 3$
7. $y = -5x + 30$
8. $y = x - 7$
9. $y = \frac{4}{3}x + 4$

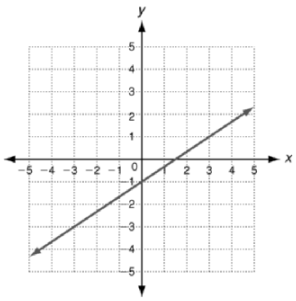
Section 5-6 continued

10. $y = 2x - 3$

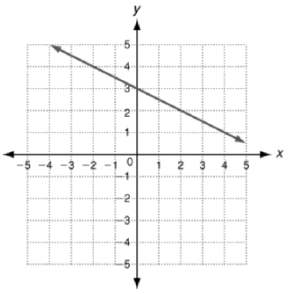


Section 5-7

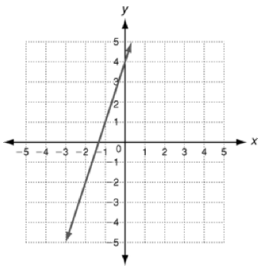
1.



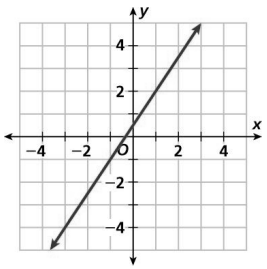
2.



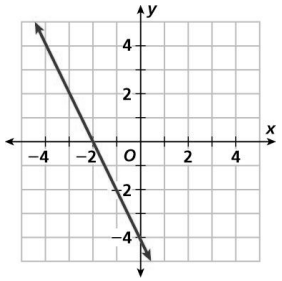
3.

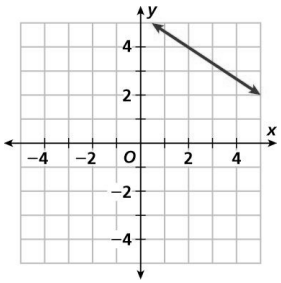


4.



Section 5-7 continued

5. 

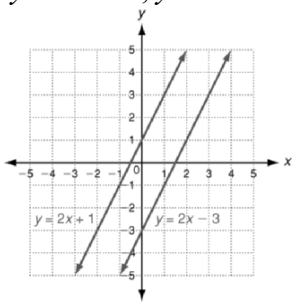
6. 

7. $y = -3x + 5$

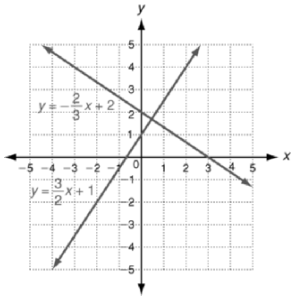
8. $y = \frac{1}{4}x + 1$

Section 5-8

1. $y = 2x + 1$; $y = 2x - 3$



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



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

4. $\frac{4}{3}$; $-\frac{3}{4}$

5. $y = -x + 11$

6. $y = \frac{1}{4}x - 3$

Section 6-2

1. (2, 3)
2. (7, 9)
3. (-4, 1)
4. (17, 7)
5. (3, 6)
6. (-1, 7)

Section 8-3

1. $(x + 2)(x + 8)$
2. $(x - 4)(x - 5)$
3. $(x + 12)(x + 1)$
4. $(x + 10)(x + 5)$
5. $(x - 9)(x - 4)$
6. $(x - 4)(x + 5)$
7. $(x + 1)(x - 4)$
8. $(x - 3)(x + 6)$
9. $(x - 7)(x + 2)$
10. $(x - 5)(x + 9)$

Section 8-4

1. $(x + 2)(5x + 2)$
2. $(3x + 4)(x + 1)$
3. $(2x - 7)(x - 3)$
4. $(2x + 3)(2x + 1)$
5. $(3x + 5)(x - 4)$
6. $(5x - 1)(x + 7)$
7. $-1(2x - 5)(x + 1)$

Section 9-6

1. $x = 6, 3$
2. $x = -8, 5$
3. $x = 0, 7$
4. $x = \frac{3}{2}$; -9
5. $x = \frac{1}{5}$; -2
6. $x = -4, 2$
7. $x = -4, 3$
8. $x = -5$
9. $x = -8, 1$
10. $x = \pm 7$
11. $x = 0, -\frac{25}{4}$
12. $x = 5, -2$
13. $x = -3, -7$
14. $x \pm 2$
15. $x = -1, 3$

Section 7-1

1. ray

Section 7-1 continued

2. line
3. line segment
4. line segment
5. line
6. right angle
7. acute angle
8. obtuse angle
9. straight angle
10. acute angle
11. acute angle
12. vertical angles
13. 90°; complementary angles
14. 180°; supplementary angles
15. $\cong$
16. $\cong \angle CBD$
17. $\cong \angle VPS$

Section 8-1

1. 22 in.
2. 30 m
3. 22 cm
4. 14 cm
5. 30 cm
6. 42 in^2
7. 60 cm^2
8. 8 $units^2$

Section 8-2

1. 26.6 cm
2. 35 in.
3. 40 in^2
4. 21 $units^2$
5. 64 cm^2
6. 153 in^2
7. 26 $units^2$

Section 8-3

1. 15π ft $\approx$ 47.1 ft
2. 8π m $\approx$ 25.12 m
3. 81π $ft^2 \approx 254.34$ ft^2
4. 25π $m^2 \approx 78.5$ m^2

Section 8-5

1. 16 in^3
2. 60 cm^3
3. 120 mm^3
4. 192 cm^3
5. 27 mm^3
6. 36 ft^3
7. 75π $units^3 \approx 235.5$ $units^3$