Gordon Summer Packet for 7th—>8th As a resource, students can use their username and login to access the online version of the Math in Focus textbook http://my.hrw.com

Name: \_\_\_\_\_

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**Evaluate each expression.** 

**35.**  $-4[10 - (-7)] + [(-9) + 3(-4)] \div 7$ 

**36.** 
$$\frac{3}{5}\left(\frac{1}{3}-\frac{5}{6}\right)+1\frac{4}{15}+2\left(-\frac{9}{20}\right)$$

**37.** -3[4.1 - (-2.3)] - 0.4[-6.7 + 3(2.4)]

**38.** 
$$-\frac{1}{4}[-18 + 2.4(-3.5 + 2.5)] + 2\frac{1}{4} + (-8.4)$$

**39.** 
$$\frac{-\frac{5}{6}+1\frac{1}{3}}{3\left[\frac{1}{6}-\left(-\frac{4}{9}\right)\right]}$$

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45. A 30 question survey gives the following points for responses A, B, C, and D: A = 5, B = 3, C = -2, and D = -4. A person's score is found by totaling the points for all responses. Jason gave 8 A responses, 6 B responses, 12 C responses, and 4 D responses. Find Jason's score for the survey.

**46.** The highest temperature ever recorded in Bolivia was 116.1°F in Villamontes, Tarija Department. The lowest temperature ever recorded was –14.3°F in Uyuni, Potosi Department. Find the range of temperatures in Bolivia.

**47.** Two wooden planks have a length of  $4\frac{1}{4}$  feet and  $2\frac{1}{2}$  feet. A new plank is created by overlapping the ends of the two planks using diagonal cuts and fastening them together. If the length of the overlap is 5 inches long, what is the length, in feet, of the new plank?

**48.** A hot air balloon was flying at an altitude of 2,150 feet. It took the balloon 4 minutes to descend to 1,430 feet. Find the average change in balloon height.

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# **Cumulative Practice**

for Chapters 3 to 5

## Simplify each expression.

**1.** 
$$5.8m + 2.3n - 4.9m - 1.7n$$
 **2.**  $\frac{3}{7}x + \frac{5}{8} - \frac{3}{14}x + \frac{1}{4}$ 

#### Expand and simplify each expression.

**3.** 
$$-0.6(x + 3y) - 0.4x$$
 **4.**  $-\frac{1}{2}\left(\frac{2}{3}x - 4\right)$ 

**5.** 
$$4\left(\frac{1}{5}x - 3y\right) + 7y - \frac{1}{3}x$$
 **6.**  $-6(m + 3n) - 4(2m - n)$ 

#### Factor each expression.

**7.** -9x - 45 **8.** 18 - 30w + 6k

# Translate each verbal description into an algebraic expression. Simplify the expression when possible.

**9.** 45% of two-fifteenths of the product of (x + 1) and one-twelfth y

**10.** Ten-ninths of the sum of 3x, 12y, and -6z

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# Tell whether each pair of equations are equivalent.

**11.** 
$$5x + 1 = 11$$
 and  $2x = 4$   
**12.**  $\frac{1}{3}y = 1$  and  $y + 1 = 2$ 

Solve each equation.

**13.** 
$$10.4 + 2.5y = 15.4$$
 **14.**  $1.8(5 - 2y) = 0.9y$ 

**15.** 
$$2(3p - 4) - 3(5 - 2p) + 18 = 19$$
  
**16.**  $9.6 - 2(4.5y + 3) = 1.2(2y - 3) + 3y$ 

Solve each inequality. Then graph each solution set on a number line.

**17.** 
$$2 - 2(x - 3) > x - 7$$
  
**18.**  $m - \frac{1}{6}m - 1 \le \frac{1}{3}m + 1$ 

**19.** 11.8 - 0.7b < -9.2 **20.**  $7 - 4(5y - 3) \le 2(3 - y) - 5$ 

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Tell whether each table, equation, or graph represents a direct proportion, an inverse proportion, or neither. Find the constant of proportionality for the direct and inverse proportion identified.

21.	x	0.2	0.6	1.2	22.
	У	3	9	18	

x	<b>x</b> 5		25	
у	45	15	9	

	_
~~	
-7-2	
<b>ZJ</b> .	

 x
 20
 40
 60

 y
 -160
 -320
 -480

**24.** 
$$y = \frac{1}{4}x + 5$$

**25.** 
$$0.5y = 3.5x$$

**26.** 
$$8y = \frac{72}{x}$$





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# Solve. Show your work.

**36.** The table shows the relationship between the gas usage, *x* gallons, and the distance traveled, *y* miles, of a car. Graph the relationship between the distance traveled, *y*, and the gas usage, *x*. Use 1 unit on the horizontal axis to represent 1 gallon and 1 unit on the vertical axis to represent 10 miles.

Gas usage (x gallons)	0	1	2	3	4	5
Distance traveled (y miles)	0	20	40	60	80	100


- a) Is the distance traveled, in miles, directly proportional to the gas usage, in gallons? If so, find the constant of proportionality.
- **b)** Owen will like to go to a town that is 100 miles away. How many gallons of gas does he need?
- c) If 2 gallons of gas are left, how far can the car travel?

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- 37. A man walked a distance of (3x + 2y) meters for half an hour. He then continued to walk (2x + <sup>1</sup>/<sub>2</sub>y) meters for another 20 minutes.
   a) Determine the total distance he walked.

  - b) Find his average walking speed in meters per minute.
- **38.** Ken, Leon, and Mark each collect seashells as a hobby. Ken has (3x 5) seashells, Leon has (2x + 1) seashells, and Mark has  $\left(\frac{1}{4}x + 7\right)$  seashells.
  - a) Write an expression for the total number of seashells they have collected in all.
  - **b)** If the total number of seashells collected by them is 45, find the number of seashells each of them has.
- **39.** Catherine rents a booth at a flea market for \$80 per day. She plans to sell printed T-shirts for \$14 each. If the cost price of each shirt is \$5, how many printed T-shirts must she sell to make a profit of at least \$250 for a day?
- **40.** A dozen cans of milk powder weigh 18 pounds. The weight of milk powder, *w* pounds, is directly proportional to the number of cans, *n*.
  - a) Find the constant of proportionality.
  - **b)** Write an equation that relates *w* and *n*.
  - c) What is the weight, in pounds, of 8 cans of milk powder?



# $\overrightarrow{MN}$ is parallel to $\overrightarrow{PQ}$ ; find the measure of each numbered angle.

# Find the measures of $\angle 1$ and $\angle 2$ in each diagram.

**13.**  $\triangle ABC$  is an isosceles triangle.

2 D C B 14.



# Cumulative Practice - Course 3A for Chapters 3 and 4

# Solve each equation. Show your work.

**1.** 
$$3(2x - 4) - 7 = 23$$
 **2.**  $5x - (8 - 3x) = 72$ 

**3.** 
$$\frac{1}{6}(x+3) - 4 = -3.2$$
 **4.**  $2x - \frac{5}{9} = \frac{7x+8}{9}$ 

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Tell whether each equation has one solution, no solution, or an infinite number of solutions. Show your work.

**9.** 8 - 5x = 11x - 24

**10.** 
$$8x + 6 = 3\left(\frac{8}{3}x + 2\right)$$

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# Find the value of y when x = -3.

**15.** 
$$2x - 3y = \frac{1}{4}(x - 13)$$
 **16.**  $\frac{2}{9}(3y + 4x) = 2x$ 

**17.** 
$$\frac{5x-3}{2y} = -\frac{3}{5}$$
 **18.**  $\frac{7y-4}{2} = 3x$ 

# Express x in terms of y. Find the value of x when y = 4.

**19.** 
$$6x + 7y = 2(5x + y)$$
 **20.**  $x + 9y = 6(x - y)$ 

# Express x in terms of y. Find the value of x when y = 4.

**21.** 
$$\frac{3}{4}y - \frac{7}{8}x = 10$$
 **22.**  $\frac{0.7(4x+3)}{y} = 14$ 

**23.** 
$$0.5(2x + y) = 12 - 3x$$
 **24.**  $\frac{3y + x}{4} + \frac{y}{2} = 10$ 

Find the slope of the line passing through each pair of points.

**25.** (1, 6) and (5, 9)

**26.** (3, 2) and (7, −3)

#### Name: \_\_\_

# Identify the y-intercept. Then calculate the slope using the points indicated.



For each equation, find the slope and the y-intercept of the graph of the equation.

**31.** 
$$y = -\frac{4}{3}x$$
 **32.**  $y = 9x - 4$ 

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Use the given slope and y-intercept of a line to write an equation in slope-intercept form.

33.	Slope, $m = 0$	34.	Slope, $m = -\frac{1}{4}$
	y-intercept, $b = -\frac{2}{3}$		y-intercept, $b = 5$

**35.** Write an equation of the line parallel to 3x + 5 = 2y that has a y-intercept of -1.

**36.** A line has slope 7 and passes through the point (1, 9). Write an equation of the line.

**37.** Write an equation of the line that passes through the point (0,2) and is parallel to y + 8x=0

- **41.** A coin box contains quarters and dimes in the ratio of 4: 5. The total number of coins in the box is (6q + 18). Write an algebraic expression for each of the following.
  - a) The number of dimes.
  - **b)** The number of quarters.
  - c) The total value of the coins in dollars.

Graph the line with the given slope that passes through the given point. Use 1 grid square to represent 1 unit on both axes for the *x*-interval 0 to 12.

# **40.** Slope: $\frac{1}{4}$ ; (0, 3)

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#### Solve. Show your work.

**41.** The diagram shows a vehicle lift. The vehicle is elevated such that the angles made by the legs of the lift to the ground are as given in the diagram. Write an equation in terms of *x*. Hence find the value of *x*.



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#### Solve. Show your work.

- **43.** Gwen bought some boxes of mints at \$6 each. She gave the cashier a \$50 note and she received a change of *y* dollars.
  - a) Write a linear equation for the amount of change, *y* dollars, that she received in terms of the number of boxes of mints, *n*.

**b)** Solve for *n* in terms of *y*.

c) Calculate the number of boxes of mints that Gwen bought if she received \$26 change.

**d)** Hilary also bought some boxes of the same mints. When she gave the cashier a \$100 note, she also received the same *y* dollars change. Write a linear equation to find the number of boxes of mints, *n*, that each girl bought. Tell whether the equation has one solution, is inconsistent, or is an identity. Explain your reasoning.

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### Solve. Show your work.

**45.** Mobile providers *P* and *Q* each charge their customers *C* dollars. The charges consist of a monthly service fee plus a fixed usage charge per minute, *t*.



a) Find the monthly service fee that each mobile provider charges.

**b)** Which mobile provider charges a lesser per minute fee for the first 100 minutes?