Name _____ Class _____ Date _____

Solving Multiplication and Division Equations

1. The bar diagram models the equation 3r = 57. Solve the equation.

57		
r	r	r

2. The algebra tiles model the equation 2x = 14. Solve the equation.

Algebra Tiles

3. Each equation shows an operation. Check all the equations that have multiplication as the inverse operation.

   ❏ A. g • 17 = 204   ❏ C. n + 15 = 78
   ❏ B. 80 = x ÷ 5   ❏ D. m ÷ 7 = 9

4. Complete the sentence.

   Dividing by 12 is the inverse of _____.

5. Solve the equation x ÷ 7 = 8.

6. A physical education teacher divides the class into teams of 5 to play floor hockey. There are a total of 4 teams. How many students, s, are in the class? Solve the equation s ÷ 5 = 4 to find the number of students.

7. **Error Analysis** The director of an animal rescue group wants to evenly share 24 toys between three puppies. Let t be the number of toys each puppy received. The director draws the bar diagram to model the equation 3t = 24.

24		
t	t	t

   From this, a worker thinks each puppy should get 5 toys. Wait a minute! This answer does not make sense.

   a) What is the error?

   ○ A. The worker did not use the bar diagram correctly.

   ○ B. The director did not draw the bar diagram correctly.

   ○ C. The director did not use the bar diagram correctly.

   ○ D. The worker did not draw the bar diagram correctly.

   b) How many toys should each puppy receive?

8. a) **Writing** Write a one-step equation that involves multiplication and a one-step equation that involves division.

   b) Explain how you would use inverse operations to solve these equations.

   c) To correspond to your explanation, which operation would you use to solve 3k = 27?

   ○ A. Division

   ○ B. Multiplication

9. a) **Reasoning** For the equation $z \div 3 = 8$, what must be true about the value of z? Check all that apply.

   ❏ A. The value of z must have 3 and 8 as factors.

   ❏ B. The value of z must have 3 and 8 as multiples.

   ❏ C. The value of z is 8 + 3.

   ❏ D. The value of z is 8 − 3.

   ❏ E. The value of z is 8 • 3.

   ❏ F. The value of z is 8 ÷ 3.

   b) Explain your reasoning.

10. a) **Mental Math** Solve the two equations $m \div 100 = 47$ and $n \div 400 = 6$.

    b) Which has greater value, m or n?

    ○ A. n

    ○ B. m

11. **Fundraising** The fundraising group collected the quarters from the school's wishing well. The group arranged the quarters into 8 piles of 20 quarters. Let q be the number of quarters in the well.

    a) Solve the equation $q \div 8 = 20$ to find the number of quarters in the well.

    b) How much money, in dollars, did the group collect? (Hint: Four quarters equal one dollar.)

12. At its grand opening, a clothing store sold three green shirts for every red shirt sold. The store sold 18 green shirts that day. Let r be the number of red shirts sold. The algebra tiles model the equation 3r = 18.

    Algebra Tiles
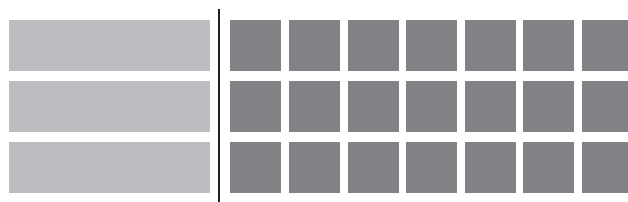
    a) The store sold how many red shirts?

    b) The store sold how many red shirts and green shirts?

13. For the equation $(x - 5) \div 2 = 14$, what operation should you use to get (x − 5) alone on the left side?

Copyright © by Pearson Education, Inc., or its affiliates. All Rights Reserved.

14. **Challenge** A teacher evenly shares 45 berries and 125 grapes among 5 students. They use the bar diagrams to model the equations. Let b be the number of berries and g be the number of grapes for each student.

Berries

45				
b	b	b	b	b

$$5b = 45$$

Grapes

125				
g	g	g	g	g

$$5g = 125$$

   a) How many berries does each student get?

   b) How many grapes does each student get?

   c) How many pieces of fruit does each student get?

15. **Challenge** A local softball league has 6 teams. Each team had 11 players at the start of the season and 14 players at the end. Let b be the number of players in the league at the start of the season and c at the end.

   a) Use the equations $b \div 6 = 11$ and $c \div 6 = 14$ to find how many players joined the league during the season.

   b) Describe another way to solve this problem.