LESSON 7-4

Equations with Many Solutions or No Solution

Practice and Problem Solving: A/B

Tell whether each equation has one, zero, or infinitely many solutions.
If the equation has one solution, solve the equation.

1. $4(x-2) = 4x + 10$

2. $\frac{1}{2}n + 7 = \frac{n + 14}{2}$

3. $6(x - 1) = 6x - 1$

4. $6n + 7 - 2n - 14 = 5n + 1$

5. $4x + 5 = 9 + 4x$

6. $\frac{1}{2}(8 - x) = \frac{8 - x}{2}$

7. $8(y + 4) = 7y + 38$

8. $4(-8x + 12) = -26 - 32x$

9. $2(x + 12) = 3x + 24 - x$

10. $3x - 14 + 2(x - 9) = 2x - 2$

Solve.

11. Cell phone company A charges $20 per month plus $0.05 per text message. Cell phone company B charges $10 per month plus $0.07 per text message. Is there any number of text messages that will result in the exact same charge from both companies?

12. Lisa's pet shop has 2 fish tanks. Tank A contains smaller fish who are fed 1 gram of food each per day. Tank B contains larger fish who are fed 2 grams of food each per day. If Tank B contains $\frac{2}{3}$ the number of fish that Tank A contains, will Lisa ever feed both tanks the same amount of food?

Practice and Problem Solving: C

1. $x = 6$

2. $n = 2$

3. $y = 3$

4. $k = 9$

5. $m = \dfrac{1}{4}$

6. $x = -6$

7. 11 oz

8. 137 mi

9. Benjamin: 13; Kevan: 17

10. 11 mi

11. 19 quarters, 23 dimes

Practice and Problem Solving: D

1. $x = 10$

2. $n = 15$

3. $s = 2$

4. $p = \dfrac{1}{2}$

5. $y = -6$

6. $k = -1$

7. $m = 11$

8. $x = 6$

9. a. $k - 6$

   b. $2(k - 6)$

   c. $2(k - 6) = 18$

   d. Kevan is 9 and Katie is 15.

Reteach

1. $i = -3$

2. $n = 4$

3. $y = \dfrac{2}{3}$

4. $x = 14$

Reading Strategies

1. $-4(j + z) - 3j = 6$

   $-4j - 8 - 3j = 6$

   $-7j - 8 = 6$

   $-7j = 1$

   $j = -2$

2. $4n + 6 - 2n = 3(n + 3) - 11$

   $4n + 6 - 2n = 3n + 9 - 11$

   $2n + 6 = 3n - 2$

   $8 = n$

3. $5(r - 1) = 2(r - 4) - 6$

   $5r - 5 = 2r - 8 - 6$

   $5r - 5 = 2r - 14$

   $3r = -9$

   $r = -3$

4. $2\left(n + \dfrac{1}{3}\right) = \dfrac{3}{2}n + 1$

   $2n + \dfrac{2}{3} = \dfrac{3}{2}n + 1$

   $\dfrac{n}{2} = \dfrac{1}{3}$

   $n = \dfrac{2}{3}$

Success for English Learners

1. $x = 5$

2. 11 quarters; 20 pennies

LESSON 7-4

Practice and Problem Solving: A/B

1. zero solutions

2. infinitely many solutions

3. zero solutions

4. $n = -8$; one solution

5. zero solutions

6. infinitely many solutions

7. $y = 6$; one solution

8. zero solutions

9. infinitely many solutions

10. $x = 10$; one solution

11. Yes; 500 text messages will cost exactly the same from both companies.

12. No, the two tanks will never need the exact same amount of food.

Practice and Problem Solving: C

1. zero solutions

2. one solution; $m = 7$

3. infinitely many solutions

4. one solution; $n = -8$

5. one solution; $r = 14$