LESSON 8-5

Practice B

Solving Rational Equations and Inequalities

Solve each equation.

1. $x - \dfrac{6}{x} = 5$

2. $\dfrac{15}{4} = \dfrac{6}{x} + 3$

3. $x = \dfrac{3}{x} + 2$

4. $\dfrac{4}{x^2 - 4} = \dfrac{1}{x - 2}$

Solve each inequality by using a graphing calculator and a table.

5. $\dfrac{6}{x + 1} < -3$

6. $\dfrac{x}{x - 2} \geq 0$

7. $\dfrac{2x}{x + 5} \leq 0$

8. $\dfrac{-x}{x - 3} \geq 0$

Solve each inequality algebraically.

9. $\dfrac{12}{x + 4} \leq 4$

10. $\dfrac{7}{x + 3} < -5$

11. $\dfrac{x}{x - 2} > 9$

12. $\dfrac{2x}{x - 5} \geq 3$

Solve.

13. The time required to deliver and install a computer at a customer's location

is $t = 4 + \dfrac{d}{r}$, where t is time in hours, d is the distance, in miles, from the

warehouse to the customer's location, and r is the average speed of the
delivery truck. If it takes 6.2 hours for the employee to deliver and install a
computer for a customer located 100 miles from the warehouse, what is
the average speed of the delivery truck?

Holt Algebra 2

c. $154; $130; $112

d. $y = 70$; possible answer: no matter how many people go on the trip, the cost per person cannot be less than $70.

2. a. $f(x) = \left(\dfrac{1000}{x}\right) + 145$

b. $345.00; $287.90; $245.00

c. $133.00

3. A   4. C

Reading Strategies

1. $x = 6$; $y = -5$; $\{x|x \neq 6\}$; $\{y|y \neq -5\}$

2. $x = -4$; $y = 1$; $\{x|x \neq -4\}$; $\{y|y \neq 1\}$

3. $x = 2$ 4. $y = -3$

5. $\{x|x \neq 2\}$ 6. $\{y|y \neq -3\}$

7. $f(x) = \dfrac{1}{x-2} - 3$

LESSON 8-5

Practice A

1. x 2. $4(x-6)$

3. x^3 4. $x = \dfrac{1}{2}$

5. $x = -12$ 6. $x = -3, x = 1$

7. $x = \dfrac{24}{13}$ 8. $x < -2$ or $x > 2$

9. $5 < x \leq 10$ 10. $x < 1$ or $x > 2$

11. $-4 < x \leq -1$

12. $x = -4$ and 1 because they make the denominators of the original equation equal to 0

13. a. The length of time it would take Ari to wash the car himself

b. $m = 6$

Practice B

1. $x = -1$ or $x = 6$ 2. $x = 8$

3. $x = 3$ or $x = -1$ 4. no solution.

5. $-3 < x < -1$ 6. $x \leq 0$ or $x > 2$

7. $-5 < x \leq 0$ 8. $0 \leq x < 3$

9. $x < -4$ or $x \geq -1$ 10. $-\dfrac{22}{5} < x < -3$

11. $2 < x < \dfrac{9}{4}$ 12. $5 < x \leq 15$

13. About 45.5 miles per hour

Practice C

1. $r = -\dfrac{4}{9}$ 2. no solution.

3. $x = 7$ and $x = -1$ 4. $d = \dfrac{1}{5}$

5. $x < -1$ or $x > 0$ 6. $-5 < x \leq -3$

7. $-3 < x \leq -2$ 8. $x < 3$ OR $x > 4$

9. $m < 0$ or $m \geq 4$ 10. $5 < s < 9$

11. $z \leq -24$ or $z > 4$ 12. $x < -12$ or $x > 15$

13. About 14.83 in.   14. About 18.6 h

Reteach

1. $x^2 + 2x - 8 = 0$

$(x + 4)(x - 2) = 0$

$x = -4, x = 2$

2. $x^2 - 6 = x$

$x^2 - x - 6 = 0$

$(x - 3)(x + 2) = 0$

$x = 3, x = -2$

3. $x(x) = 4(x) + \dfrac{5}{x}(x)$

$x^2 = 4x + 5$

$x^2 - 4x - 5 = 0$

$(x - 5)(x + 1) = 0$

$x = 5, x = -1$

4. $\dfrac{x+1}{x+2} \cdot 5(x + 2)$

$= \dfrac{x}{5} \cdot 5(x + 2)$

$5 + 5(x + 1) = x(x + 2)$

$x^2 - 3x - 10 = 0$; $x = 5$

5. $\dfrac{x}{3} \cdot 3(x - 1) + \dfrac{x+3}{x-1} \cdot 3(x - 1)$

$= \dfrac{4}{x-1} \cdot 3(x - 1)$