

**Algebra II Practice Quiz 8.5 - 8.8****Multiple Choice**

Identify the choice that best completes the statement or answers the question.

- \_\_\_\_\_ 1. Solve the equation  $x - 9 = -\frac{18}{x}$ .
- a.  $x = 6$  c.  $x = -3$  or  $x = -6$   
b.  $x = 3$  or  $x = 6$  d.  $x = 3$
- \_\_\_\_\_ 2. Solve the equation  $\frac{6x}{x-3} = \frac{4x+6}{x-3}$ .
- a. There is no solution. c.  $x = 3$   
b.  $x = -\frac{3}{2}$  d.  $x = -3$
- \_\_\_\_\_ 3. Zelon Pharmaceuticals maintains a courier plane to transport company executives back and forth between the company headquarters and the main manufacturing plant 250 miles away. Today the pilot flew from headquarters to the plant, picked up the Chief of Operations, and returned to headquarters. On the first leg of the trip, the pilot flew against a headwind averaging 10 miles per hour. On the return leg, the average tailwind was 30 miles per hour. If the pilot spent a total of four hours in the air, what would the average speed of the courier plane be with no wind? Round your answer to the nearest mile per hour.
- a. 118 mph  
b. 121 mph  
c. 125 mph  
d. Cannot determine. To determine the average speed, you need the time it took for each leg of the trip, not the total time.
- \_\_\_\_\_ 4. Jeremy and Ahmed are painting a wall. Working alone, Jeremy can paint  $\frac{1}{4}$  of the wall in 1 hour. Working together, Jeremy and Ahmed can paint the entire wall in 35 minutes. How long would it take Ahmed to paint the entire wall by himself?
- a. 20 minutes c. 3 hours  
b. 35 minutes d. 4 hours
- \_\_\_\_\_ 5. Solve the equation  $\frac{2x}{x^2 - 7x - 18} = \frac{6x}{x^2 + x - 2}$ .
- a.  $x = 0$  or  $x = -13$  c.  $x = 9$  or  $x = 1$   
b.  $x = -2$ ,  $x = 9$ , or  $x = 1$  d.  $x = 0$  or  $x = 13$
- \_\_\_\_\_ 6. Find all the real fourth roots of 16.
- a. -2 c. 2 and -2  
b. no real roots d. 2
- \_\_\_\_\_ 7. Simplify the expression  $\sqrt[4]{256z^{16}}$ . Assume that all variables are positive.
- a.  $\sqrt[4]{256z^4}$  c.  $\sqrt[4]{256z^{11}}$   
b.  $4z^4$  d.  $4z^{11}$

- \_\_\_\_\_ 8. Write the expression  $8^{\frac{5}{3}}$  in radical form, and simplify. Round to the nearest whole number if necessary.
- a.  $(\sqrt[5]{8})^3; 3$  c.  $(\sqrt[3]{8})^5; 32$   
 b.  $\sqrt[5]{8}; 32$  d.  $\frac{8^5}{8^3}; 64$
- \_\_\_\_\_ 9. Write the expression  $\sqrt[11]{10^8}$  by using rational exponents.
- a.  $10^{\frac{8}{11}}$  c.  $10^{-3}$   
 b.  $10^3$  d.  $10^{\frac{11}{8}}$
- \_\_\_\_\_ 10. Simplify the expression  $(27)^{\frac{1}{3}} \cdot (27)^{\frac{2}{3}}$ .
- a. 9 c. 27  
 b. 3 d. 729
- \_\_\_\_\_ 11. The surface area  $S$  of a cube with volume  $V$  is  $S = 6V^{\frac{2}{3}}$ . What effect does increasing the volume of a cube by a factor of 7 have on the surface area?
- a. The surface area increases by a factor of  $7^{\frac{2}{3}}$ .  
 b. The surface area increases by a factor of 7.  
 c. The surface area increases by a factor of  $7^2$ .  
 d. The surface area increases by a factor of  $7^{\frac{1}{3}}$ .
- \_\_\_\_\_ 12. Solve the equation  $-6 + \sqrt{x-5} = -2$ .
- a.  $x = 11$  c.  $x = 21$   
 b.  $x = 9$  d.  $x = 16$
- \_\_\_\_\_ 13. Solve  $\sqrt{11x} = 3\sqrt{x+2}$ .
- a.  $x = 9$  c.  $x = 18$   
 b.  $x = 11$  d.  $x = 14$
- \_\_\_\_\_ 14. Solve  $\sqrt{x+31} = x+1$ .
- a.  $x = -6$  c. No solution.  
 $\sqrt{x+31}$  is not defined for  $x < -31$ .  
 b.  $x = 5$  or  $x = -6$  d.  $x = 5$
- \_\_\_\_\_ 15. Solve  $(-3x+18)^{\frac{1}{2}} = x$ .
- a.  $x = -6$  or  $x = 3$  c.  $x = 6$  or  $x = -3$   
 b.  $x = -6$  d.  $x = 3$
- \_\_\_\_\_ 16. Solve  $\sqrt{6x-2} \leq 3$ .
- a.  $x \leq \frac{5}{6}$  c.  $x \leq \frac{11}{6}$   
 b.  $\frac{1}{3} \leq x \leq \frac{11}{6}$  d.  $\frac{1}{3} \leq x \leq \frac{5}{6}$

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

ID: A

- \_\_\_\_\_ 17. The speed  $s$  in miles per hour that a car is traveling when it goes into a skid can be estimated by the formula  $s = \sqrt{30fd}$ , where  $f$  is the coefficient of friction and  $d$  is the length of the skid marks in feet. On the highway near Lake Tahoe, a police officer finds a car on the shoulder, abandoned by a driver after a skid and crash. He is sure that the driver was driving faster than the speed limit of 20 mi/h because the skid marks measure 9 feet and the coefficient of friction under those conditions would be 0.7. At about what speed was the driver driving at the time of the skid? Round your answer to the nearest mi/h.
- |             |            |
|-------------|------------|
| a. 23 mi/h  | c. 14 mi/h |
| b. 189 mi/h | d. 19 mi/h |

**Numeric Response**

18. What value of  $x$  makes  $(2x + 17)^{\frac{1}{3}} = 3$  a true statement?

## Algebra II Practice Quiz 8.5 - 8.8

### Answer Section

#### MULTIPLE CHOICE

1. ANS: B

$$x(x) - 9(x) = -\frac{18}{x}(x)$$

$$x^2 - 9x = -18$$

$$x^2 - 9x + 18 = 0$$

$$(x - 3)(x - 6) = 0$$

$$x - 3 = 0 \text{ or } x - 6 = 0$$

$$x = 3 \text{ or } x = 6$$

Multiply each term by the LCD.

Simplify. Note  $x \neq 0$

Write in standard form.

Factor.

Apply the Zero-Product Property.

Solve for  $x$ .

**Check:**

$$x - 9 = -\frac{18}{x}$$

|       |                 |
|-------|-----------------|
| 3 - 9 | $-\frac{18}{3}$ |
| -6    | -6              |

$$x - 9 = -\frac{18}{x}$$

|       |                 |
|-------|-----------------|
| 6 - 9 | $-\frac{18}{6}$ |
| -3    | -3              |

|          | Feedback                                                                                                         |
|----------|------------------------------------------------------------------------------------------------------------------|
| <b>A</b> | Multiply each term by the LCD. Then solve the resulting quadratic equation. There may be more than one solution. |
| <b>B</b> | Correct!                                                                                                         |
| <b>C</b> | Multiply each term by the LCD. Then solve the resulting quadratic equation.                                      |
| <b>D</b> | Multiply each term by the LCD. Then solve the resulting quadratic equation. There may be more than one solution. |

PTS: 1

NAT: 12.5.4.a

DIF: Average

REF: Page 600

OBJ: 8-5.1 Solving Rational Equations

TOP: 8-5 Solving Rational Equations and Inequalities

2. ANS: A

$$\frac{6x}{x-3}(x-3) = \frac{4x+6}{x-3}(x-3)$$

$$6x = 4x + 6$$

$$2x = 6$$

$$x = 3$$

Multiply each term by the LCD,  $(x - 3)$ .Simplify. Note that  $x \neq 3$ .Solve for  $x$ .

The solution  $x = 3$  is extraneous because it makes the denominators of the original equation equal to 0. Therefore the equation has no solution.

|   | Feedback                                    |
|---|---------------------------------------------|
| A | Correct!                                    |
| B | Check your answer in the original equation. |
| C | Check your answer in the original equation. |
| D | Check your answer in the original equation. |

PTS: 1

DIF: Average

REF: Page 601

OBJ: 8-5.2 Extraneous Solutions

NAT: 12.5.4.a

TOP: 8-5 Solving Rational Equations and Inequalities

3. ANS: A

Let  $s$  represent the average speed of the plane. Using time =  $\frac{\text{distance}}{\text{speed}}$ , organize the data in a table.

|              | Distance<br>(mi) | Average Speed<br>(mi/h) | Time<br>(h)          |
|--------------|------------------|-------------------------|----------------------|
| <b>Leg 1</b> | 250              | $s - 10$                | $\frac{250}{s - 10}$ |
| <b>Leg 2</b> | 250              | $s + 30$                | $\frac{250}{s + 30}$ |

Total time = time from headquarters to plant + time from plant to headquarters

$$4 = \frac{250}{s - 10} + \frac{250}{s + 30}$$

$$4(s - 10)(s + 30) = \frac{250}{s - 10}(s - 10)(s + 30) + \frac{250}{s + 30}(s - 10)(s + 30) \quad \text{Multiply by the LCD.}$$

$$4(s - 10)(s + 30) = 250(s + 30) + 250(s - 10)$$

$$4(s^2 + 20s - 300) = 250s + 7500 + 250s - 2500$$

$$4s^2 + 80s - 1200 = 500s + 5000$$

$$4s^2 - 420s - 6200 = 0$$

$$s^2 - 105s - 1550 = 0$$

$$s = \frac{-(-105) \pm \sqrt{(-105)^2 - 4(1)(-1550)}}{2(1)}$$

$$s = \frac{105 \pm 131.2}{2}$$

$$s = 118 \text{ or } s = -13$$

The speed of the plane cannot be negative. Therefore, the average speed of the plane is 118 mph.

Simplify.  $s \neq 10$  or  $-30$ .

Distribute.

Combine like terms.

Divide both sides by 4.

Use the Quadratic Formula.

Solve for  $s$ .

|          | Feedback                                                                                                 |
|----------|----------------------------------------------------------------------------------------------------------|
| <b>A</b> | Correct!                                                                                                 |
| <b>B</b> | Use time = distance/speed and organize your data in a table. Remember to add or subtract the wind speed. |
| <b>C</b> | Remember to add or subtract the wind speed.                                                              |
| <b>D</b> | Use time = distance/speed and organize your data in a table. Remember to add or subtract the wind speed. |

PTS: 1

DIF: Average

REF: Page 602

OBJ: 8-5.3 Problem-Solving Application

NAT: 12.5.4.a

TOP: 8-5 Solving Rational Equations and Inequalities

4. ANS: C

Jason's rate:  $\frac{1}{4}$  of the wall per hour

Let Ahmed's rate be  $\frac{1}{h}$  of the wall per hour.

Given: Jason's rate ( $\frac{1}{4}$ ) plus Ahmed's rate ( $\frac{1}{h}$ ) = the entire wall in 35 minutes.

$$\frac{1}{4} + \frac{1}{h} = \frac{7}{12}$$

$$12h \cdot \left(\frac{1}{4} + \frac{1}{h}\right) = 12h \cdot \frac{7}{12} \quad \text{Multiply by the LCD.}$$

$$3h + 12 = 7h \quad \text{Simplify.}$$

$$h = 3 \quad \text{Solve for } h.$$

Ahmed can paint the entire wall by himself in 3 hours.

|   | Feedback                                                                 |
|---|--------------------------------------------------------------------------|
| A | Solve for $h$ , not $1/h$ .                                              |
| B | That's how long it takes them to paint the entire wall working together. |
| C | Correct!                                                                 |
| D | That's how long it takes Jeremy to paint the entire wall working alone.  |

PTS: 1      DIF: Average      REF: Page 603      OBJ: 8-5.4 Application

NAT: 12.5.4.a      TOP: 8-5 Solving Rational Equations and Inequalities

KEY: algebra | equation | rate

5. ANS: D

$$\frac{2x}{x^2 - 7x - 18} = \frac{6x}{x^2 + x - 2}$$

$$\frac{2x}{(x+2)(x-9)} = \frac{6x}{(x+2)(x-1)}$$

$$2x(x-1) = 6x(x-9)$$

$$2x^2 - 2x = 6x^2 - 54x$$

$$4x^2 - 52x = 0$$

$$4x(x-13) = 0$$

$$4x = 0 \text{ or } x - 13 = 0$$

$$x = 0 \text{ or } x = 13$$

Factor the denominator.

Multiply each term by the LCD  $(x+2)(x-9)(x-1)$  and simplify. Note that  $x \neq -2$ ,  $x \neq 9$ , and  $x \neq 1$ .

Use the Distributive Property.

Write in standard form.

Factor.

Use the Zero-Product Property.

Solve for  $x$ .

|   | Feedback                                                                                                              |
|---|-----------------------------------------------------------------------------------------------------------------------|
| A | Check your answer. Substitute $-13$ for $x$ in the original equation to see if you get a true statement.              |
| B | A rational expression is undefined for any value of a variable that makes a denominator in the expression equal to 0. |
| C | First, factor the denominator, and then multiply each term by the LCD. Then, factor and solve for $x$ .               |
| D | Correct!                                                                                                              |

PTS: 1 DIF: Advanced NAT: 12.5.4.a

TOP: 8-5 Solving Rational Equations and Inequalities

6. ANS: C

If the index is odd, there is only one real root. For example: the real cube root of 125 is 5 and the real cube root of  $-125$  is  $-5$ .

If the index is even and the radicand is positive, there are two real roots. For example: the real fourth roots of 256 are 4 and  $-4$ .

If the index is even and the radicand is negative, there are no real roots. For example: there are no real fourth roots to  $-256$ .

|   | Feedback                                                                                                                                                    |
|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A | If the index is odd, there is only one real root. If it is even and the radicand is positive, there are two real roots. Otherwise, there are no real roots. |
| B | If the index is odd, there is only one real root. If it is even and the radicand is positive, there are two real roots. Otherwise, there are no real roots. |
| C | Correct!                                                                                                                                                    |
| D | If the index is odd, there is only one real root. If it is even and the radicand is positive, there are two real roots. Otherwise, there are no real roots. |

PTS: 1 DIF: Basic REF: Page 610 OBJ: 8-6.1 Finding Real Roots

NAT: 12.5.3.c TOP: 8-6 Radical Expressions and Rational Exponents

7. ANS: B

$$\begin{aligned}
 & \sqrt[4]{256z^{16}} \\
 &= \sqrt[4]{256 \cdot z^4 \cdot z^4 \cdot z^4 \cdot z^4} && \text{Factor into perfect powers of four.} \\
 &= 4 \cdot z \cdot z \cdot z \cdot z && \text{Use the Product Property of Roots.} \\
 &= 4z^4 && \text{Simplify.}
 \end{aligned}$$

|   | Feedback                                                                                                      |
|---|---------------------------------------------------------------------------------------------------------------|
| A | Use the Product Property of Roots to simplify the coefficient.                                                |
| B | Correct!                                                                                                      |
| C | To find the nth root of a product, factor the product into powers of n and use the Product Property of Roots. |
| D | To find the nth root of a product, factor the product into powers of n and use the Product Property of Roots. |

PTS: 1 DIF: Basic REF: Page 611

OBJ: 8-6.2 Simplifying Radical Expressions

NAT: 12.5.3.c

TOP: 8-6 Radical Expressions and Rational Exponents

8. ANS: C

$$\begin{aligned}
 & 8^{\frac{5}{3}} \\
 &= (\sqrt[3]{8})^5 && \text{Write with a radical.} \\
 &= (2)^5 && \text{Evaluate the root.} \\
 &= 32 && \text{Evaluate the power.}
 \end{aligned}$$

|   | Feedback                                                          |
|---|-------------------------------------------------------------------|
| A | The exponent m/n indicates the nth root raised to the m-th power. |
| B | The exponent m/n indicates the nth root raised to the m-th power. |
| C | Correct!                                                          |
| D | The exponent m/n indicates the nth root raised to the m-th power. |

PTS: 1 DIF: Average REF: Page 612

OBJ: 8-6.3 Writing Expressions in Radical Form

NAT: 12.5.3.b

TOP: 8-6 Radical Expressions and Rational Exponents

9. ANS: A

$$\sqrt[n]{10^m} = 10^{\frac{m}{n}}$$

$$\sqrt[11]{10^8} = 10^{\frac{8}{11}}$$

|   | Feedback                                                                                                                 |
|---|--------------------------------------------------------------------------------------------------------------------------|
| A | Correct!                                                                                                                 |
| B | The exponent is a fraction; the numerator is the power of the radicand, and the denominator is the index of the radical. |
| C | The exponent is a fraction; the numerator is the power of the radicand, and the denominator is the index of the radical. |
| D | The exponent is a fraction; the numerator is the power of the radicand, and the denominator is the index of the radical. |

PTS: 1 DIF: Average REF: Page 612

OBJ: 8-6.4 Writing Expressions by Using Rational Exponents NAT: 12.5.3.b

TOP: 8-6 Radical Expressions and Rational Exponents

10. ANS: C

$$(27)^{\frac{1}{3}} \cdot (27)^{\frac{2}{3}}$$

$$= (27)^{\frac{1+2}{3}} \quad \text{Product of Powers}$$

$$= (27)^1 \quad \text{Simplify.}$$

$$= 27$$

|   | Feedback                                |
|---|-----------------------------------------|
| A | First add the exponents, then simplify. |
| B | First add the exponents, then simplify. |
| C | Correct!                                |
| D | First add the exponents, then simplify. |

PTS: 1 DIF: Basic REF: Page 613

OBJ: 8-6.5 Simplifying Expressions with Rational Exponents NAT: 12.5.3.c

TOP: 8-6 Radical Expressions and Rational Exponents

11. ANS: A

To find the effect, replace  $V$  with  $7V$  in the equation.

$$S = 6(7V)^{\frac{2}{3}} \quad \text{Substitute.}$$

$$S = 6(7)^{\frac{2}{3}} V^{\frac{2}{3}} \quad \text{Use the Power of a Product Property.}$$

The surface area changes by a factor of  $7^{\frac{2}{3}}$  when the volume changes by a factor of 7.

|   | Feedback                                                                       |
|---|--------------------------------------------------------------------------------|
| A | Correct!                                                                       |
| B | Replace $V$ with the new volume, and then use the Power of a Product Property. |
| C | Replace $V$ with the new volume, and then use the Power of a Product Property. |
| D | Replace $V$ with the new volume, and then use the Power of a Product Property. |

PTS: 1

DIF: Advanced

TOP: 8-6 Radical Expressions and Rational Exponents

12. ANS: C

$$\sqrt{x-5} = 4 \quad \text{Subtract } -6 \text{ from both sides.}$$

$$x-5 = 16 \quad \text{Square both sides.}$$

$$x = 21 \quad \text{Simplify.}$$

**Check**

$$-6 + \sqrt{21-5} = -2$$

$$-6 + \sqrt{16} = -2$$

$$-6 + 4 = -2$$

$$-2 = -2 \quad \text{OK}$$

|   | Feedback                                                                              |
|---|---------------------------------------------------------------------------------------|
| A | It looks like in your last step you added the value instead of subtracting the value. |
| B | It looks like you didn't subtract the leading term from both sides before squaring.   |
| C | Correct!                                                                              |
| D | Remember to subtract the value that is next to the $x$ .                              |

PTS: 1

DIF: Basic

REF: Page 628

OBJ: 8-8.1 Solving Equations Containing One Radical

TOP: 8-8 Solving Radical Equations and Inequalities

13. ANS: A

$$(\sqrt{11x})^2 = (3\sqrt{x+2})^2$$

Square both sides.

$$11x = 9(x+2)$$

Simplify.

$$11x = 9x + 18$$

Distribute 9.

$$2x = 18$$

Solve for  $x$ .

$$x = 9$$

|   | Feedback                                                             |
|---|----------------------------------------------------------------------|
| A | Correct!                                                             |
| B | Square both terms when squaring a product.                           |
| C | Distribute correctly.                                                |
| D | Square both terms when squaring a product, and distribute correctly. |

PTS: 1      DIF: Average      REF: Page 629

OBJ: 8-8.2 Solving Equations Containing Two Radicals

TOP: 8-8 Solving Radical Equations and Inequalities

14. ANS: D

**Step 1** Solve for  $x$ .

$$\left(\sqrt{x+31}\right)^2 = (x+1)^2 \quad \text{Square both sides.}$$

$$x+31 = x^2 + 2x + 1 \quad \text{Simplify.}$$

$$0 = x^2 + x - 30 \quad \text{Write in standard form.}$$

$$0 = (x-5)(x+6) \quad \text{Factor.}$$

$$x-5 = 0 \text{ or } x+6 = 0 \quad \text{Solve for } x.$$

$$x = 5 \text{ or } x = -6$$

**Step 2** Use substitution to check for extraneous solutions.

$$\sqrt{x+31} = x+1$$

|               |       |
|---------------|-------|
| $\sqrt{5+31}$ | $5+1$ |
| $\sqrt{36}$   | $6$   |
| $6$           | $6$   |

$$\sqrt{x+31} = x+1$$

|                |        |
|----------------|--------|
| $\sqrt{-6+31}$ | $-6+1$ |
| $\sqrt{25}$    | $-5$   |
| $5$            | $-5$   |

Because  $x = -6$  does not satisfy the original equation, it is extraneous.The only solution is  $x = 5$ .

|          | Feedback                                                                                                    |
|----------|-------------------------------------------------------------------------------------------------------------|
| <b>A</b> | Square both sides and solve for $x$ . Check whether each possible solution satisfies the original equation. |
| <b>B</b> | Check whether each possible solution satisfies the original equation.                                       |
| <b>C</b> | Square both sides and solve for $x$ . Check whether each possible solution satisfies the original equation. |
| <b>D</b> | Correct!                                                                                                    |

PTS: 1      DIF: Average      REF: Page 629

OBJ: 8-8.3 Solving Equations with Extraneous Solutions

TOP: 8-8 Solving Radical Equations and Inequalities

15. ANS: D

**Step 1** Solve for  $x$ .

$$(-3x + 18)^{\frac{1}{2}} = x$$

$$\left[ (-3x + 18)^{\frac{1}{2}} \right]^2 = x^2$$

Raise both sides to the reciprocal power.

$$-3x + 18 = x^2$$

Simplify.

$$x^2 + 3x - 18 = 0$$

Write in standard form.

$$(x + 6)(x - 3) = 0$$

Factor.

$$x + 6 = 0 \text{ or } x - 3 = 0$$

Use the Zero-Product Property.

$$x = -6 \text{ or } x = 3$$

Solve for  $x$ .**Step 2** Use substitution to check for extraneous solutions.

$$\begin{array}{r|l} (-3x + 18)^{\frac{1}{2}} = x & \\ \hline [(-3)(-6) + 18]^{\frac{1}{2}} & -6 \\ (36)^{\frac{1}{2}} & -6 \\ 6 & -6 \end{array}$$

$$\begin{array}{r|l} (-3x + 18)^{\frac{1}{2}} = x & \\ \hline [(-3)(3) + 18]^{\frac{1}{2}} & 3 \\ (9)^{\frac{1}{2}} & 3 \\ 3 & 3 \end{array}$$

Because  $x = -6$  does not satisfy the original equation, it is extraneous. The only solution is  $x = 3$ .

|          | Feedback                                                                                              |
|----------|-------------------------------------------------------------------------------------------------------|
| <b>A</b> | Use substitution to check for extraneous solutions.                                                   |
| <b>B</b> | Raise both sides to the reciprocal power and solve for $x$ . Use substitution to check your solution. |
| <b>C</b> | Raise both sides to the reciprocal power and solve for $x$ . Use substitution to check your solution. |
| <b>D</b> | Correct!                                                                                              |

PTS: 1 DIF: Average REF: Page 630

OBJ: 8-8.4 Solving Equations with Rational Exponents

TOP: 8-8 Solving Radical Equations and Inequalities

16. ANS: B

**Step 1** Solve for  $x$ .

$$(\sqrt{6x-2})^2 \leq (3)^2$$

Square both sides.

$$6x - 2 \leq 9$$

Simplify.

$$6x \leq 11$$

Solve for  $x$ .

$$x \leq \frac{11}{6}$$

**Step 2** Consider the radicand.

$$6x - 2 \geq 0$$

The radicand cannot be negative.

$$6x \geq 2$$

Solve for  $x$ .

$$x \geq \frac{1}{3}$$

The solution to  $\sqrt{6x-2} \leq 3$  is  $x \leq \frac{11}{6}$  and  $x \geq \frac{1}{3}$  or  $\frac{1}{3} \leq x \leq \frac{11}{6}$ 

|   | Feedback                                                          |
|---|-------------------------------------------------------------------|
| A | Square both sides of the equation. Remember to check the radical. |
| B | Correct!                                                          |
| C | Remember to check the radical.                                    |
| D | Square both sides of the equation.                                |

PTS: 1

DIF: Average

REF: Page 630

OBJ: 8-8.5 Solving Radical Inequalities

TOP: 8-8 Solving Radical Equations and Inequalities

17. ANS: C

In  $s = \sqrt{30fd}$ , after substituting the given values and simplifying we see that  $s = \sqrt{189}$ . Therefore,  $s \approx 14$  mi/h. The driver wasn't speeding.

|   | Feedback                                                                      |
|---|-------------------------------------------------------------------------------|
| A | Estimate the square of 20 and 25 to compare with 189. You need a lower value. |
| B | That is the value of 30 times f times d. You need to calculate the speed.     |
| C | Correct!                                                                      |
| D | Estimate square of 20 and compare with 189. You need a lower value.           |

PTS: 1

DIF: Basic

REF: Page 631

OBJ: 8-8.6 Application

TOP: 8-8 Solving Radical Equations and Inequalities

**NUMERIC RESPONSE**

18. ANS: 5

PTS: 1

DIF: Advanced

TOP: 8-8 Solving Radical Equations and Inequalities