

**LESSON 137 ANSWERS** .....

1. B    2. C    3. D    4. C    5. C    6. B  
 7. A    8. D    9. D    10. A    11. B    12. D  
 13. B    14. C    15. C    16. C    17. B

*Worked-out solutions to selected problems:*

1.  $2x + 3 = 7$  or  $2x + 3 = -7$   
 $2x = 4$  or  $2x = -10$   
 $x = 2, x = -5$   
 $|2 - 5| = 3$

2.  $-3 \leq -x < 2$   
 $-2 < x \leq 3$   
 The largest possible  $x$  is 3.

4. Solve eq1 for  $x$ :  $x = -2y$   
 Plug eq1 into eq2:  $2(-2y) + 3y = 2$   
 Solve eq2 for  $y$ :  $-y = 2$   
 $y = -2$   
 Use eq1 to find  $x$ :  $x = -2(-2) = 4$   
 Find the answer:  $4 - 2 = 2$

5.  $(x + 2)(x - 4) = x^2 - 2x - 8$   
 $-8 = -4k; k = 2$

6.  $(3x + 1)(x - 3) = 0$   
 $x = -\frac{1}{3}, x = 3$

7.  $2^x \cdot (2^3)^3 = 2^{x+9} = 2^{10}$   
 $\sqrt[3]{(3^3)^2} = \sqrt[3]{3^6} = 3^2 = 3^y$   
 $x = 1, y = 2$

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

9. Excluded values:  $x \neq 0, 3$   
 $LCD = x(x - 3)$   
 Multiply both sides by the LCD, then solve for  $x$ .  
 $5(x - 3) + x^2 = x - 3$   
 $x^2 + 4x - 12 = 0$   
 $(x - 2)(x + 6) = 0$   
 $x = 2, x = -6$

11.  $0.002 \times 1000 = 2$

12.  $60/2 = 30$  miles/gallon  
 $210/30 = 7$  gallons

13.  $p = \frac{-1 + 3}{2} = 1$

14. Use  $f(2) = 3$  to find  $a$ :  $3 = a \cdot 2^2 + 2 + 5$   
 $4a = -4$   
 $a = -1$   
 Find  $f(-2)$ :  $f(-2) = -(-2)^2 - 2 + 5$   
 $f(-2) = -1$

16. The parabola is downward, so  $a < 0$ .  
 The  $y$ -intercept is positive, so  $c > 0$ .

17.  $\frac{1}{60} + \frac{1}{x} = \frac{1}{20}$   
 Multiply both sides by LCD =  $60x$ .  
 $x + 60 = 3x$   
 $-2x = -60$   
 $x = 30$