

19. $(18i)(\sqrt{-36} + 7i) = (18i)(6i + 7i) =$
 $(18i)(13i) = 234i^2 = 234(-1) = -234$
20. $(i^2)(i)(i^3) = i^{2+1+3} = i^6 = (-1)^3 = -1$

Lesson Practice 12A

$$1. \quad X = \frac{-(-6) \pm \sqrt{(-6)^2 - 4(1)(2)}}{2(1)} = \frac{-6 \pm \sqrt{28}}{2} =$$

$$\frac{-6 \pm 2\sqrt{7}}{2} = -3 \pm \sqrt{7}$$

$$2. \quad X^2 - 5X + 4 = 0$$

$$(X - 4)(X - 1) = 0$$

$$X - 4 = 0 \quad X - 1 = 0$$

$$X = 4 \quad X = 1$$

$$3. \quad X = \frac{-(-7) \pm \sqrt{(-7)^2 - 4(3)(-1)}}{2(3)} = \frac{-7 \pm \sqrt{61}}{6}$$

$$4. \quad A^2 - 10A + 11 = 0$$

$$(A - 11)(A + 1) = 0$$

$$A - 11 = 0 \quad A + 1 = 0$$

$$A = 11 \quad A = -1$$

$$5. \quad 2Q^2 + 2 = 17Q$$

$$2Q^2 - 17Q + 2 = 0$$

$$\frac{-(-17) \pm \sqrt{(-17)^2 - 4(2)(2)}}{2(2)} = \frac{17 \pm \sqrt{273}}{4}$$

$$6. \quad 5X^2 + 15X + 10 = 0$$

$$(5)(X + 1)(X + 2) = 0$$

$$X + 1 = 0 \quad X + 2 = 0$$

$$X = -1 \quad X = -2$$

$$7. \quad \frac{1}{4}R^2 - \frac{1}{2}R + \frac{3}{2} = 0$$

$$(4)\frac{1}{4}R^2 - (4)\frac{1}{2}R + (4)\frac{3}{2} = (4)0$$

$$R^2 - 2R + 6 = 0$$

$$\frac{-(-2) \pm \sqrt{(-2)^2 - 4(1)(6)}}{2(1)} =$$

$$\frac{2 \pm \sqrt{-20}}{2} = \frac{2 \pm 2i\sqrt{5}}{2} = 1 \pm i\sqrt{5}$$

$$8. \quad 16X^2 = 2X + 4$$

$$8X^2 = X + 2$$

$$8X^2 - X - 2 = 0$$

$$X = \frac{-(-1) \pm \sqrt{(-1)^2 - 4(8)(-2)}}{2(8)} = \frac{1 \pm \sqrt{65}}{16}$$

$$9. \quad X = \frac{-(3) \pm \sqrt{(3)^2 - 4(2)(-8)}}{2(2)} = \frac{-3 \pm \sqrt{73}}{4}$$

$$10. \quad Y^2 = \frac{3}{4}Y + 2$$

$$(4)Y^2 = (4)\frac{3}{4}Y + (4)2$$

$$4Y^2 = 3Y + 8$$

$$4Y^2 - 3Y - 8 = 0$$

$$X = \frac{-(-3) \pm \sqrt{(-3)^2 - 4(4)(-8)}}{2(4)} = \frac{3 \pm \sqrt{137}}{8}$$

Lesson Practice 12B

$$1. \quad X = \frac{-(-1) \pm \sqrt{(-1)^2 - 4(8)(-3)}}{2(8)} = \frac{1 \pm \sqrt{97}}{16}$$

$$2. \quad 7 = 2X^2 + X$$

$$0 = 2X^2 + X - 7$$

$$X = \frac{-(1) \pm \sqrt{(1)^2 - 4(2)(-7)}}{2(2)} = \frac{-1 \pm \sqrt{57}}{4}$$

$$3. \quad Q = \frac{-(-6) \pm \sqrt{(-6)^2 - 4(1)(3)}}{2(1)} = \frac{6 \pm \sqrt{24}}{2} =$$

$$\frac{6 \pm 2\sqrt{6}}{2} = 3 \pm \sqrt{6}$$

$$4. \quad 2 + 3X + 4X^2 = 0$$

$$4X^2 + 3X + 2 = 0$$

$$X = \frac{-(3) \pm \sqrt{(3)^2 - 4(4)(2)}}{2(4)} =$$

$$\frac{-3 \pm \sqrt{-23}}{8} = \frac{-3 \pm i\sqrt{23}}{8}$$

$$5. \quad P = P^2 - 2$$

$$0 = P^2 - P - 2$$

$$0 = (P - 2)(P + 1)$$

$$P - 2 = 0 \quad P + 1 = 0$$

$$P = 2 \quad P = -1$$

$$\begin{aligned}
 6. \quad & x^2 + \frac{1}{5}x + 5 = 0 \\
 & (5)x^2 + (5)\frac{1}{5}x + (5)5 = (5)0 \\
 & 5x^2 + x + 25 = 0 \\
 & x = \frac{-(1) \pm \sqrt{(1)^2 - 4(5)(25)}}{2(5)} = \frac{-1 \pm i\sqrt{499}}{10} \\
 7. \quad & 20x^2 + 40x = 30 \\
 & 2x^2 + 4x = 3 \\
 & 2x^2 + 4x - 3 = 0 \\
 & x = \frac{-(4) \pm \sqrt{(4)^2 - 4(2)(-3)}}{2(2)} = \frac{-4 \pm \sqrt{40}}{4} = \\
 & \frac{-4 \pm 2\sqrt{10}}{4} = \frac{-2 \pm \sqrt{10}}{2} \\
 8. \quad & x = \frac{-(2) \pm \sqrt{(2)^2 - 4(5)(-1)}}{2(5)} = \frac{-2 \pm \sqrt{24}}{10} = \\
 & \frac{-2 \pm 2\sqrt{6}}{10} = \frac{-1 \pm \sqrt{6}}{5} \\
 9. \quad & 3x^2 = -5x \\
 & 3x^2 + 5x = 0 \\
 & (x)(3x + 5) = 0 \\
 & x = 0 \quad \quad \quad 3x + 5 = 0 \\
 & \quad \quad \quad 3x = -5 \\
 & \quad \quad \quad x = -\frac{5}{3} \\
 10. \quad & \frac{-(B) \pm \sqrt{(B)^2 - 4(A)(C)}}{2(A)} = \frac{-B \pm \sqrt{B^2 - 4AC}}{2A}
 \end{aligned}$$

$$\begin{aligned}
 3. \quad & x^2 - 3x + 1 = -6x \\
 & x^2 + 3x + 1 = 0 \\
 & x = \frac{-(3) \pm \sqrt{(3)^2 - 4(1)(1)}}{2(1)} = \frac{-3 \pm \sqrt{5}}{2} \\
 4. \quad & x^2 + 4x - 12 = 0 \\
 & (x + 6)(x - 2) = 0 \\
 & x + 6 = 0 \quad \quad \quad x - 2 = 0 \\
 & x = -6 \quad \quad \quad x = 2 \\
 5. \quad & x = \frac{-(2) \pm \sqrt{(2)^2 - 4(2)(5)}}{2(2)} = \\
 & \frac{-2 \pm \sqrt{-36}}{4} = \frac{-2 \pm 6i}{4} = \frac{-1 \pm 3i}{2} \\
 6. \quad & x^2 + 8x = -16 \\
 & x^2 + 8x + 16 = 0 \\
 & (x + 4)(x + 4) = 0 \\
 & x + 4 = 0 \quad \quad x = -4 \\
 7. \quad & 169 \\
 8. \quad & 2x^2 + 9x + \text{---} \\
 & \text{divide through by 2:} \\
 & x^2 + \frac{9}{2}x + \text{---} \\
 & \text{complete the square:} \\
 & x^2 + \frac{9}{2}x + \frac{81}{16} \\
 & \text{multiply through by 2:} \\
 & 2x^2 + 9x + \frac{81}{8} \\
 9. \quad & 40x \\
 10. \quad & 2\sqrt{14}x
 \end{aligned}$$

Systematic Review 12C

$$\begin{aligned}
 1. \quad & x^2 - 5x + 6 = 0 \\
 & (x - 3)(x - 2) = 0 \\
 & x - 3 = 0 \quad \quad \quad x - 2 = 0 \\
 & x = 3 \quad \quad \quad x = 2 \\
 2. \quad & x = \frac{-(4) \pm \sqrt{(4)^2 - 4(1)(2)}}{2(1)} = \\
 & \frac{-4 \pm 2\sqrt{2}}{2} = -2 \pm \sqrt{2}
 \end{aligned}$$

$$11. \quad x^2 + \frac{1}{3}x - \frac{4}{3} = 0$$

$$x^2 + \frac{1}{3}x + \frac{1}{36} = \frac{4}{3} + \frac{1}{36}$$

$$\left(x + \frac{1}{6}\right)^2 = \frac{4(12)}{3(12)} + \frac{1}{36}$$

$$\left(x + \frac{1}{6}\right)^2 = \frac{49}{36}$$

$$x + \frac{1}{6} = \sqrt{\frac{49}{36}}$$

$$x = -\frac{1}{6} \pm \frac{7}{6}$$

$$x = -\frac{1}{6} + \frac{7}{6}$$

$$x = -\frac{1}{6} - \frac{7}{6}$$

$$x = \frac{6}{6} = 1$$

$$x = -\frac{8}{6} = -\frac{4}{3}$$

$$12. \quad (1)^2 + \frac{1}{3}(1) - \frac{4}{3} = 0$$

$$1 + \frac{1}{3} - \frac{4}{3} = 0$$

$$\frac{3}{3} + \frac{1}{3} - \frac{4}{3} = 0$$

$$0 = 0$$

$$\left(-\frac{4}{3}\right)^2 + \frac{1}{3}\left(-\frac{4}{3}\right) - \frac{4}{3} = 0$$

$$\frac{16}{9} - \frac{4}{9} - \frac{12}{9} = 0$$

$$0 = 0$$

$$13. \quad (x - A)^6 = 1x^6(-A)^0 + 6x^5(-A)^1 +$$

$$15x^4(-A)^2 + 20x^3(-A)^3 + 15x^2(-A)^4 +$$

$$6x^1(-A)^5 + 1x^0(-A)^6 =$$

$$x^6 - 6x^5A + 15x^4A^2 - 20x^3A^3 +$$

$$15x^2A^4 - 6xA^5 + A^6$$

$$14. \quad \frac{4}{1}\left(\frac{1}{2}x\right)^3(-3A)^1 = 4\left(\frac{1}{8}\right)x^3(-3A) = -\frac{3}{2}x^3A$$

$$15. \quad (5 - 2A)^3 =$$

$$1(5)^3(-2A)^0 + 3(5)^2(-2A)^1 +$$

$$3(5)^1(-2A)^2 + 1(5)^0(-2A)^3 =$$

$$125 - 150A + 60A^2 - 8A^3$$

$$16. \quad (x - 2y)$$

$$17. \quad \frac{6+5i}{3i-2} = \frac{(6+5i)(3i+2)}{(3i-2)(3i+2)} =$$

$$\frac{18i+12+15i^2+10i}{9i^2-4} = \frac{28i+12+15(-1)}{9(-1)-4} =$$

$$\frac{28i+12-15}{-9-4} = \frac{28i-3}{-13}$$

$$18. \quad \frac{2+\sqrt{-49}}{2-\sqrt{-49}} = \frac{(2+\sqrt{-49})(2+\sqrt{-49})}{(2-\sqrt{-49})(2+\sqrt{-49})} =$$

$$\frac{4+4\sqrt{-49}-49}{4-(-49)} = \frac{-45+4i(7)}{4+49} = \frac{-45+28i}{53}$$

$$19. \quad \frac{2}{3-\sqrt{7}} = \frac{2(3+\sqrt{7})}{(3-\sqrt{7})(3+\sqrt{7})} =$$

$$\frac{6+2\sqrt{7}}{9-7} = \frac{6+2\sqrt{7}}{2} = \frac{3+\sqrt{7}}{1} = 3+\sqrt{7}$$

$$20. \quad \frac{2+\sqrt{5}}{2\sqrt{5}-4} = \frac{(2+\sqrt{5})(2\sqrt{5}+4)}{(2\sqrt{5}-4)(2\sqrt{5}+4)} =$$

$$\frac{4\sqrt{5}+8+4\sqrt{5}+2\sqrt{25}}{4(5)-16} = \frac{8\sqrt{5}+8+2(5)}{20-16} =$$

$$\frac{8\sqrt{5}+8+10}{4} = \frac{8\sqrt{5}+18}{4} = \frac{4\sqrt{5}+9}{2}$$

Systematic Review 12D

$$1. \quad x = \frac{-(-9) \pm \sqrt{(-9)^2 - 4(2)(-7)}}{2(2)} = \frac{9 \pm \sqrt{137}}{4}$$

$$2. \quad x = \frac{-(5) \pm \sqrt{(5)^2 - 4(1)(-2)}}{2(1)} = \frac{-5 \pm \sqrt{33}}{2}$$

$$3. \quad 3x^2 + 7x + 4 = 0$$

$$(3x+4)(x+1) = 0$$

$$3x+4 = 0$$

$$x+1 = 0$$

$$3x = -4$$

$$x = -1$$

$$x = -\frac{4}{3}$$

$$4. \quad x = \frac{-(-6) \pm \sqrt{(-6)^2 - 4(1)(12)}}{2(1)} =$$

$$\frac{6 \pm \sqrt{-12}}{2} = \frac{6 \pm 2i\sqrt{3}}{2} = 3 \pm i\sqrt{3}$$

$$\begin{aligned}
 5. \quad & 5X^2 - 3X - 2 = 0 \\
 & (5X + 2)(X - 1) = 0 \\
 & 5X + 2 = 0 \quad X - 1 = 0 \\
 & 5X = -2 \quad X = 1 \\
 & X = -\frac{2}{5}
 \end{aligned}$$

$$\begin{aligned}
 6. \quad & 4X^2 + 1 = 4X \\
 & 4X^2 - 4X + 1 = 0 \\
 & (2X - 1)(2X - 1) = 0 \\
 & 2X - 1 = 0 \\
 & 2X = 1 \\
 & X = \frac{1}{2}
 \end{aligned}$$

$$7. \quad \frac{25}{4}$$

$$8. \quad \frac{1}{16}$$

$$\begin{aligned}
 9. \quad & 25X^2 + \underline{\quad} + 1 \\
 & \text{divide through by 25:} \\
 & X^2 + \underline{\quad} + \frac{1}{25}
 \end{aligned}$$

complete the square:

$$X^2 + \frac{2}{5}X + \frac{1}{25}$$

multiply through by 25:

$$25X^2 + \underline{10X} + 1$$

$$\begin{aligned}
 10. \quad & 49X^2 - \underline{\quad} + 4 \\
 & \text{divide through by 49:} \\
 & X^2 - \underline{\quad} + \frac{4}{49}
 \end{aligned}$$

complete the square:

$$X^2 - \frac{4}{7}X + \frac{4}{49}$$

multiply through by 49:

$$49X^2 - \underline{28X} + 4$$

$$\begin{aligned}
 11. \quad & X^2 - 12X + 20 = 0 \\
 & (X - 10)(X - 2) = 0 \\
 & X - 10 = 0 \quad X - 2 = 0 \\
 & X = 10 \quad X = 2
 \end{aligned}$$

$$\begin{aligned}
 12. \quad & (10)^2 - 12(10) + 20 = 0 \\
 & 100 - 120 + 20 = 0 \\
 & 0 = 0
 \end{aligned}$$

$$\begin{aligned}
 & (2)^2 - 12(2) + 20 = 0 \\
 & 4 - 24 + 20 = 0 \\
 & 0 = 0
 \end{aligned}$$

$$\begin{aligned}
 13. \quad & (X + 1)^4 = \\
 & 1X^4 + 4X^3 + 6X^2 + 4X + 1X^0 = \\
 & X^4 + 4X^3 + 6X^2 + 4X + 1
 \end{aligned}$$

$$14. \quad \frac{4 \cdot 3 \cdot 2 \cdot 1}{1 \cdot 2 \cdot 3 \cdot 4} \left(\frac{1}{2}X\right)^0 (-3A)^4 = 81A^4$$

$$\begin{aligned}
 15. \quad & \left(10 - \frac{1}{X}\right)^3 = 1(10)^3 \left(-\frac{1}{X}\right)^0 + \\
 & 3(10)^2 \left(-\frac{1}{X}\right)^1 + 3(10)^1 \left(-\frac{1}{X}\right)^2 + 1(10)^0 \left(-\frac{1}{X}\right)^3 = \\
 & 1,000 - \frac{300}{X} + \frac{30}{X^2} - \frac{1}{X^3}
 \end{aligned}$$

$$16. \quad (X + 2)$$

$$\begin{aligned}
 17. \quad & \frac{4 - 3i}{2i} = \frac{(4 - 3i)(i)}{2i(i)} = \frac{4i - 3i^2}{2i^2} = \\
 & \frac{4i - 3(-1)}{2(-1)} = \frac{4i + 3}{-2}
 \end{aligned}$$

$$\begin{aligned}
 18. \quad & \frac{10 + \sqrt{-A}}{10 - \sqrt{-A}} = \frac{(10 + \sqrt{-A})(10 + \sqrt{-A})}{(10 - \sqrt{-A})(10 + \sqrt{-A})} = \\
 & \frac{100 + 20\sqrt{-A} - A}{100 - (-A)} = \frac{100 + 20i\sqrt{A} - A}{100 + A}
 \end{aligned}$$

$$\begin{aligned}
 19. \quad & \frac{9}{7 + \sqrt{10}} = \frac{9(7 - \sqrt{10})}{(7 + \sqrt{10})(7 - \sqrt{10})} = \\
 & \frac{63 - 9\sqrt{10}}{49 - 10} = \frac{63 - 9\sqrt{10}}{39} = \frac{21 - 3\sqrt{10}}{13}
 \end{aligned}$$

$$\begin{aligned}
 20. \quad & \frac{4 - \sqrt{6}}{3\sqrt{7} + 5} = \frac{(4 - \sqrt{6})(3\sqrt{7} - 5)}{(3\sqrt{7} + 5)(3\sqrt{7} - 5)} = \\
 & \frac{12\sqrt{7} - 20 - 3\sqrt{42} + 5\sqrt{6}}{9(7) - 25} = \\
 & \frac{12\sqrt{7} - 20 - 3\sqrt{42} + 5\sqrt{6}}{63 - 25} = \\
 & \frac{12\sqrt{7} - 20 - 3\sqrt{42} + 5\sqrt{6}}{38}
 \end{aligned}$$

Systematic Review 12E

1. $x^2 + 2x - 8 = 0$
 $(x + 4)(x - 2) = 0$

$$\begin{array}{ll} x + 4 = 0 & x - 2 = 0 \\ x = -4 & x = 2 \end{array}$$

2. $x^2 - 6x = -8$
 $x^2 - 6x + 8 = 0$
 $(x - 4)(x - 2) = 0$

$$\begin{array}{ll} x - 4 = 0 & x - 2 = 0 \\ x = 4 & x = 2 \end{array}$$

3. $2x^2 - 15x + 7 = 0$
 $(2x - 1)(x - 7) = 0$

$$\begin{array}{ll} 2x - 1 = 0 & x - 7 = 0 \\ 2x = 1 & x = 7 \\ x = \frac{1}{2} & \end{array}$$

4. $3x^2 + 4x = 7$
 $3x^2 + 4x - 7 = 0$
 $(3x + 7)(x - 1) = 0$

$$\begin{array}{ll} 3x + 7 = 0 & x - 1 = 0 \\ 3x = -7 & x = 1 \\ x = -\frac{7}{3} & \end{array}$$

5. $2 = 5x + x^2$
 $0 = x^2 + 5x - 2$

$$x = \frac{-(5) \pm \sqrt{(5)^2 - 4(1)(-2)}}{2(1)} = \frac{-5 \pm \sqrt{33}}{2}$$

6. $x^2 + 2x - 15 = 0$
 $(x + 5)(x - 3) = 0$

$$\begin{array}{ll} x + 5 = 0 & x - 3 = 0 \\ x = -5 & x = 3 \end{array}$$

7. $4x^2 + 28x + \underline{\hspace{1cm}}$
 divide through by 4:

$$x^2 + 7x + \underline{\hspace{1cm}}$$

complete the square:

$$x^2 + 7x + \frac{49}{4}$$

multiply through by 4:

$$4x^2 + 28x + 49$$

8. $9x^2 - 36x + \underline{\hspace{1cm}}$
 divide through by 9:

$$x^2 - 4x + \underline{\hspace{1cm}}$$

complete the square:

$$x^2 - 4x + \underline{4}$$

multiply through by 9:

$$9x^2 - 36x + 36$$

9. $36x^2 + \underline{\hspace{1cm}} + 25$
 divide through by 36:

$$x^2 + \underline{\hspace{1cm}} + \frac{25}{36}$$

complete the square:

$$x^2 + \frac{10}{6}x + \frac{25}{36}$$

multiply through by 36:

$$36x^2 + \underline{60x} + 25$$

10. $81x^2 - \underline{\hspace{1cm}} + 121$
 divide through by 81:

$$x^2 - \underline{\hspace{1cm}} + \frac{121}{81}$$

complete the square:

$$x^2 - \frac{22}{9}x + \frac{121}{81}$$

multiply through by 81:

$$81x^2 - \underline{198x} + 121$$

11. $x^2 + 5x - 14 = 0$
 $(x + 7)(x - 2) = 0$

$$\begin{array}{ll} x + 7 = 0 & x - 2 = 0 \\ x = -7 & x = 2 \end{array}$$

12. $(-7)^2 + 5(-7) - 14 = 0$
 $49 - 35 - 14 = 0$
 $0 = 0$

$$\begin{array}{l} (2)^2 + 5(2) - 14 = 0 \\ 4 + 10 - 14 = 0 \\ 0 = 0 \end{array}$$

13. $(2x + 1)^5 =$
 $1(2x)^5 1^0 + 5(2x)^4 1^1 + 10(2x)^3 1^2 +$
 $10(2x)^2 1^3 + 5(2x)^1 1^4 + 1(2x)^0 1^5 =$
 $32x^5 + 80x^4 + 80x^3 + 40x^2 + 10x + 1$

$$14. \frac{5 \cdot 4}{1 \cdot 2} \left(\frac{1}{3}x\right)^3 (2)^2 = 10 \left(\frac{1}{27}\right) x^3 (4) = \frac{40}{27} x^3$$

$$15. \left(x - \frac{3}{5}\right)^3 = 1x^3 \left(-\frac{3}{5}\right)^0 + 3x^2 \left(-\frac{3}{5}\right)^1 + 3x^1 \left(-\frac{3}{5}\right)^2 + 1x^0 \left(-\frac{3}{5}\right)^3 =$$

$$x^3 - \frac{9}{5}x^2 + \frac{27}{25}x - \frac{27}{125}$$

$$16. (2x+1)$$

$$17. \frac{10+i}{5i} = \frac{(10+i)(i)}{5i(i)} = \frac{10i+i^2}{5i^2} = \frac{10i-1}{-5}$$

$$18. \frac{10}{5-\sqrt{8}} = \frac{10(5+\sqrt{8})}{(5-\sqrt{8})(5+\sqrt{8})} = \frac{50+10\sqrt{8}}{25-8} =$$

$$\frac{50+10\sqrt{4}\sqrt{2}}{17} = \frac{50+10(2)\sqrt{2}}{17} = \frac{50+20\sqrt{2}}{17}$$

$$19. \frac{2+3\sqrt{6}}{1-\sqrt{6}} = \frac{(2+3\sqrt{6})(1+\sqrt{6})}{(1-\sqrt{6})(1+\sqrt{6})} =$$

$$\frac{2+2\sqrt{6}+3\sqrt{6}+3(6)}{1-6} = \frac{2+5\sqrt{6}+18}{-5} =$$

$$\frac{20+5\sqrt{6}}{-5} = \frac{4+\sqrt{6}}{-1} = -4-\sqrt{6}$$

$$20. \frac{6-\sqrt{2}}{10\sqrt{3}-8} = \frac{(6-\sqrt{2})(10\sqrt{3}+8)}{(10\sqrt{3}-8)(10\sqrt{3}+8)} =$$

$$\frac{60\sqrt{3}+48-10\sqrt{6}-8\sqrt{2}}{100(3)-64} =$$

$$\frac{2(30\sqrt{3}+24-5\sqrt{6}-4\sqrt{2})}{300-64} =$$

$$\frac{2(30\sqrt{3}+24-5\sqrt{6}-4\sqrt{2})}{236} =$$

$$\frac{30\sqrt{3}+24-5\sqrt{6}-4\sqrt{2}}{118}$$

Lesson Practice 13A

$$1. (6)^2 - 4(1)(9) = 0$$

real, rational, equal (double root)

$$x^2 + 6x + 9 = 0$$

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

$$x+3 = 0$$

$$x = -3$$

$$2. (7)^2 - 4(2)(3) = 25$$

real, rational, unequal

$$2x^2 + 7x + 3 = 0$$

$$(2x+1)(x+3) = 0$$

$$2x+1 = 0 \quad x+3 = 0$$

$$2x = -1 \quad x = -3$$

$$x = -\frac{1}{2}$$

$$3. (3)^2 - 4(-2)(6) = 57$$

real, irrational, unequal

$$x = \frac{-(-2) \pm \sqrt{(-2)^2 - 4(-2)(6)}}{2(-2)} = \frac{-3 \pm \sqrt{57}}{-4}$$

$$4. (-2)^2 - 4(3)(5) = -56$$

imaginary

$$x = \frac{-(-2) \pm \sqrt{(-2)^2 - 4(3)(5)}}{2(3)} =$$

$$\frac{2 \pm 2i\sqrt{14}}{6} = \frac{1 \pm i\sqrt{14}}{3}$$

$$5. 7x^2 - 3x = 20$$

$$7x^2 - 3x - 20 = 0$$

$$(-3)^2 - 4(7)(-20) = 569$$

real, irrational, unequal

$$x = \frac{-(-3) \pm \sqrt{(-3)^2 - 4(7)(-20)}}{2(7)} = \frac{3 \pm \sqrt{569}}{14}$$

Lesson Practice 13B

$$1. 2R^2 = -5R + 3$$

$$2R^2 + 5R - 3 = 0$$

$$(5)^2 - 4(2)(-3) = 49$$

real, rational, unequal

$$2R^2 + 5R - 3 = 0$$

$$(2R-1)(R+3) = 0$$

$$2R-1 = 0$$

$$2R = 1$$

$$R = \frac{1}{2}$$

$$R+3 = 0$$

$$R = -3$$