# Quadratic Equations with Imaginary Roots

Date_____ Period____

**Simplify.**

1) $\sqrt{-112}$

2) $\sqrt{-294}$

3) $\sqrt{24}$

4) $\sqrt{-252}$

5) $\sqrt{320}$

6) $\sqrt{-64}$

**Solve each equation with the quadratic formula.**

7) $8r^2 + 2r + 1 = 0$

8) $x^2 - 4x - 140 = 0$

9) $8p^2 - 7p + 6 = 0$

10) $8k^2 - 5k - 4 = 0$

11) $9p^2 + p + 7 = 3$

12) $-6a^2 + 11a + 3 = 9$

13) $-14 + a = -3a^2$

14) $-5 = 11b^2 - 2b$

15) $3n^2 + 10n = -12 - 8n^2 + 10n$

16) $r^2 - 2r - 4 = 2r^2 + 8$

**Find the discriminant of each quadratic equation then state the number and type of solutions.**

17) $-4m^2 + 4m - 1 = 0$

18) $10n^2 - 2n = 0$

19) $-7a^2 + 10a - 15 = -5$

20) $-4r^2 - 4r - 8 = -7$

21) $3x^2 + 2x = 1$

22) $5n^2 - 3n - 1 = -3$

  

# Answers to Quadratic Equations with Imaginary Roots (ID: 1)

1) $4i\sqrt{7}$

3) $2\sqrt{6}$

5) $8\sqrt{5}$

7) $\left\{\frac{-1+i\sqrt{7}}{8}, \frac{-1-i\sqrt{7}}{8}\right\}$

9) $\left\{\frac{7+i\sqrt{143}}{16}, \frac{7-i\sqrt{143}}{16}\right\}$

11) $\left\{\frac{-1+i\sqrt{143}}{18}, \frac{-1-i\sqrt{143}}{18}\right\}$

13) $\left\{2, -\frac{7}{3}\right\}$

15) $\left\{\frac{2i\sqrt{33}}{11}, -\frac{2i\sqrt{33}}{11}\right\}$

17) 0; one real solution

19) −180; two imaginary solutions

21) 16; two real solutions