

## 5.4 Quadratic Formula

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

1)  $-2v^2 - 4v - 2 = 0$

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

3)  $2x^2 - 4x + 6 = 4$

4)  $10k^2 + 4k + 8 = 7$

5)  $-2n^2 - n + 4 = 9$

Solve each equation with the quadratic formula.

6)  $-x^2 - x + 90 = 0$

7)  $5p^2 + 4p - 28 = 0$

8)  $-k^2 - 3k + 2 = 0$

9)  $2a^2 - 7a - 30 = 0$

$$10) -4x^2 - 7x - 12 = 0$$

$$11) m^2 - 9m + 15 = -5$$

$$12) 2n^2 + n - 6 = -11$$

$$13) 2x^2 + 5x + 11 = 2$$

$$14) 4n^2 - 79 = 2$$

$$15) 7p^2 - 4 = -9$$

$$16) 11r^2 + 9 = 9r$$

$$17) 3a^2 - 5a = 7$$

$$18) 10b^2 = 20 + 4b$$

$$19) 3n^2 - 112 = 5n$$

$$20) 11x^2 = -11x + 15$$

**Factor each completely.**

$$21) a^2 - a - 20$$

$$22) 3x^2 - 27x + 60$$

$$23) 2x^2 + 14x + 24$$

$$24) 3m^2 - 15m + 12$$

**Simplify.**

25)  $2\sqrt{6} + 2\sqrt{6} - 2\sqrt{27}$

26)  $3\sqrt{6} - \sqrt{54} - 2\sqrt{54}$

27)  $-4\sqrt{6}(\sqrt{2} + 2\sqrt{3})$

28)  $-\sqrt{2}(\sqrt{6} + 3)$

**Simplify. Your answer should contain only positive exponents.**

29)  $2n^{\frac{1}{2}} \cdot 4n^{-\frac{1}{2}}$

30)  $3v^{\frac{3}{4}} \cdot 2v^{-4}$