

KEY

1. State the **quadratic formula** when given the standard form of a quadratic equation: $ax^2 + bx + c = 0$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \quad \text{if } a \neq 0$$

2. Using the quadratic formula allows you to find which of the following from the graph of a quadratic function?

- A. the vertex B. the axis of symmetry C. the y-intercept **D. the x-intercepts**

3. Which of the following is the **discriminant** of the quadratic formula?

- A. $\frac{-b}{2a}$ B. $\sqrt{b-4ac}$ **C. $b^2 - 4ac$** D. $\pm\sqrt{b^2 - 4ac}$

4. The value of the discriminant of a quadratic equation can be used to determine which of the following?

- A. the vertex **B. the number of real roots**
C. if the graph is opening upward or downward D. the axis of symmetry

Use the Quadratic Formula to solve each equation.

5. $6x^2 + 19x + 8 = 0$

$a=6$
 $b=19$
 $c=8$

$$\frac{-19 \pm \sqrt{(19)^2 - 4(6)(8)}}{2(6)}$$

$x = -\frac{8}{3}$ $x = -\frac{1}{2}$

6. $x^2 - 2x - 11 = 0$

$a=1$
 $b=-2$
 $c=-11$

$$\frac{-(-2) \pm \sqrt{(-2)^2 - 4(1)(-11)}}{2(1)}$$

$x = 1 \pm 2\sqrt{3}$

7. $x^2 - 2x - 15 = 0$

$a=1$
 $b=-2$
 $c=-15$

$$\frac{-(-2) \pm \sqrt{(-2)^2 - 4(1)(-15)}}{2(1)}$$

$x=3$ $x=5$

8. $3x^2 - 7x + 5 = 0$

$a=3$
 $b=-7$
 $c=5$

$$\frac{-(-7) \pm \sqrt{(-7)^2 - 4(3)(5)}}{2(3)}$$

$x = \frac{7}{6} \pm \frac{\sqrt{11}}{6}i$