

# Algebra 1B Handwritten Quiz

$$y = x^2 - 6x - 27$$

## 1. Completing Square

$$x^2 - 6x - 27 = y$$

$$+27 \quad +27$$

$$x^2 - 6x + 9 = 27 + 9$$

$$\sqrt{(x-3)^2} = \pm\sqrt{36}$$

$$x-3 = \pm 6, \quad x-3 = -6$$

$$x-3 = 6$$

$$+3 \quad +3$$

ROOTS

$$x = 9, x = -3$$

$$\begin{array}{r} 2 \\ 27 \\ \times 4 \\ \hline 108 \\ + 36 \\ \hline 144 \end{array}$$

## 2. Factoring

$$x^2 - 6x - 27$$

$$(x-9)(x+3)$$

$$x-9=0 \quad x+3=0$$

$$+9 \quad -3-3$$

$$\boxed{x=9} \quad \boxed{x=-3}$$

ROOTS

$$\begin{array}{r} 18 \\ 12 \cdot 1 \\ \hline 45 \\ - \frac{1}{36} \end{array}$$

## 3. Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-(-6) \pm \sqrt{(-6)^2 - 4(1)(-27)}}{2(1)}$$

$$x = 6 \pm \sqrt{36 + 108}$$

$$x = 6 \pm \sqrt{144}$$

$$x = 6 \pm \frac{12}{2}$$

$$x = \frac{6+12}{2} = 9$$

$$x = \frac{6-12}{2} = -3$$

ROOTS

## 4. Vertex

$$x = \frac{-b}{2a} \quad x = \frac{-(-6)}{2(1)} = x = \frac{6}{2}$$

$$\boxed{x=3}$$

axis of symmetry

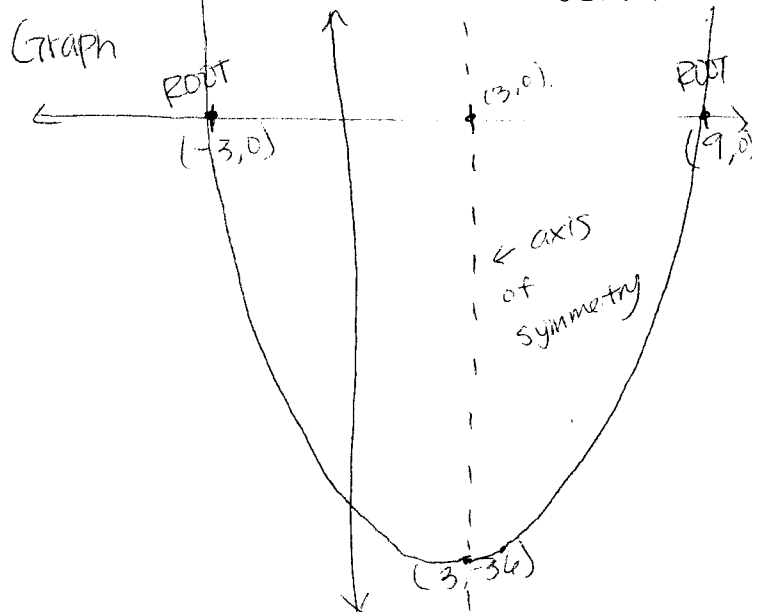
$$3^2 - 6(3) - 27 = y$$

$$9 - 18 - 27 = y$$

$$9 - 45 = y$$

$$-36 = y \quad (3, -36)$$

vertex



4

5