

Polynomial & Rational Functions

Quadratic Polynomials

Ex. $y = \underline{2x^2} - \underline{3x} + 5$

Find the vertex by completing the square.

$$y = 2 \left(x^2 - \frac{3}{2}x + \frac{9}{16} \right) + 5 - \frac{9}{8}$$

$$\left[\frac{1}{2} \left(\frac{-3}{2} \right) \right]^2 = \left(\frac{-3}{4} \right)^2 = \frac{9}{16}$$

$$y = 2 \left(x - \frac{3}{4} \right)^2 + \frac{31}{8}$$

Vertex $\left(\frac{3}{4}, \frac{31}{8} \right)$