

1. Complete the square to find the vertex for the following quadratic functions.

(a)  $y = x^2 - 8x + 5$

(b)  $y = -2x^2 + 12x - 3$

(c)  $y = -x^2 - 6x + 7$

(d)  $y = \frac{1}{3}x^2 + 4x - 1$

(e)  $y = 0.25x^2 + 1.25x$

2. Graph the following quadratic functions. Label the vertex with its coordinates; include the  $y$ -intercept (if possible), the axis of symmetry and the equation of the axis of symmetry

(a)  $y = -(x - 3)^2 + 7$

(b)  $y = 2(x + 1)^2 - 3$

(c)  $y = -\frac{1}{2}(x - 2)^2$

(d)  $y = -2x^2 + 3$

3. Find the vertex for each of the following quadratic functions.

(a)  $y = (x - 4)(x + 2)$

(b)  $y = 2(x + 5)(x + 1)$

(c)  $y = -3(x - 1)(x + 6)$

(d)  $y = (2x - 1)(4x + 3)$

(e)  $y = \frac{1}{2}(x - 8)(x - 8)$