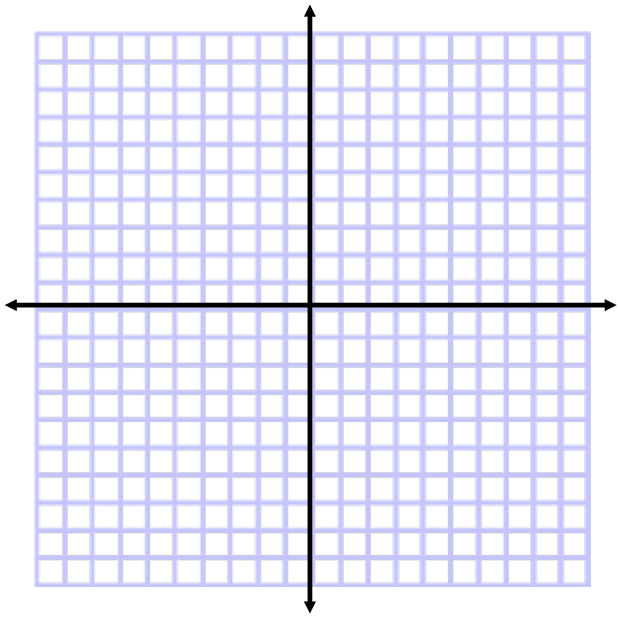
Section 2.1 Quadratic Functions and Models

Graph the following quadratics:

$y = 2(x - 3)^2 - 4$

$y = (2x - 3)^2 - 4$

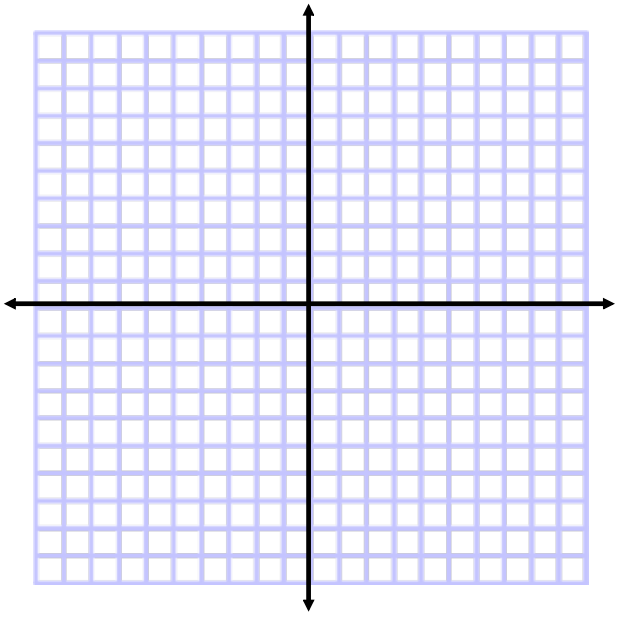


Pull

Graph the following quadratics:

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

$y = [2(x - 3)]^2 - 4$



Pull

Precalculus book refers to vertex form as standard form.

Find the vertex, axis of symmetry and x-intercept(s)

(Matches HW #13-26)

To find the vertex use the axis of symmetry

To find the x-intercept(s) factor or use quadratic formula

Write answer in form $y = a(x - h)^2 + k$

$f(x) = x^2 + 2x + 1$ $\quad$ $g(x) = x^2 - 8x$ $\quad$ $f(x) = -x^2 - 4x + 1$

Use a graphing calculator to:

Find the vertex, axis of symmetry and x-intercept(s)

Check algebraically

$f(x) = x^2 + 8x + 11$

Write the equation of the quadratic function whose graph is a parabola with the given vertex and that passes through the given point. (Matches HW #37-46)

Vertex: (-3, -10); Point: (0, 8)

Vertex: (-5/2, 0); Point: (-7/2,-16/3)

Find the x-intercept(s) of the graph and compare them with the solutions of the corresponding quadratic equation when $f(x) = 0$.

$f(x) = x^2 - 4x$

$f(x) = 7/10(x^2 + 12x - 45)$

Find two quadratic functions, one that opens upward and one that opens downward, whose graphs have the given x-intercept(s).

(Many solutions)

$f(x) = a\,(x - p)(x - q)$

(-5, 0) and (5, 0)

(-1, 0) and (4, 0)

Section 2.1:

Pgs. 12-122: #3-8, 11, 12, 13-25 odd, 31, 32, 35, 37,
41, 43, 44, 47, 50, 52, 55, 57, 68, 70, 73