3.1 Investigating Quadratic Functions in Vertex Form p2

Reminder:

$y = a(x - p)^2 + q$ is the vertex form where (p, q) is the vertex

Example 1: Determine the vertex of the following:

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

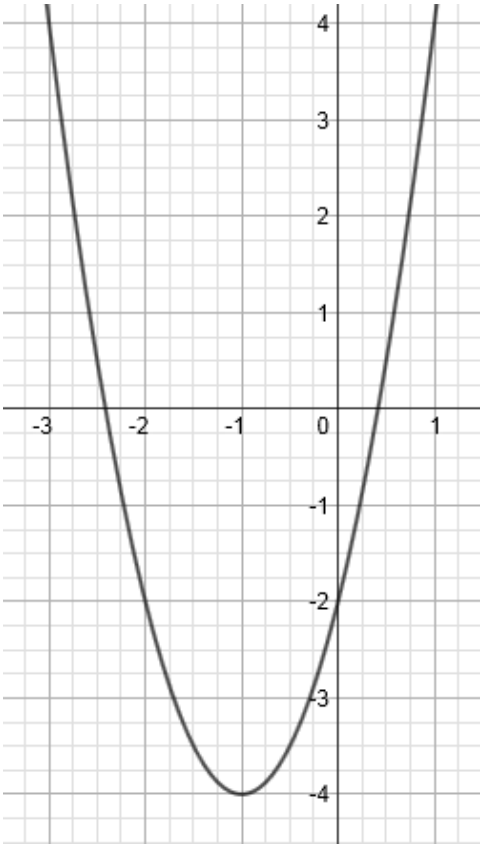
b.) $y = -(x + 4)^2 + 1$

c.) $y = 2(x - 3)^2 - 5$

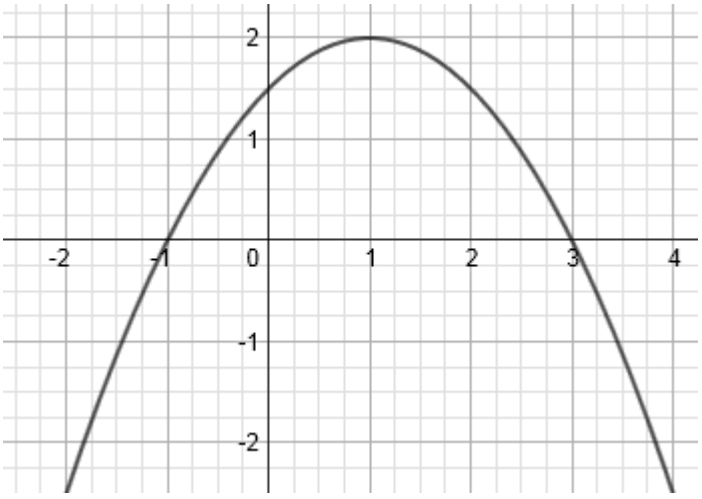
d.) $y = 6(x + 1)^2 - 2$

Example 2: Determine a quadratic function in vertex form for each graph

a.)



b.)



Example 3: Modeling Problems

Suppose a parabolic archway has a width of 280 cm and a height of 216 cm at its highest point above the floor.

a.) Write a quadratic function in vertex form that models the shape of this archway.

b) Determine the height of the archway at a point that is 50cm from its outer edge.