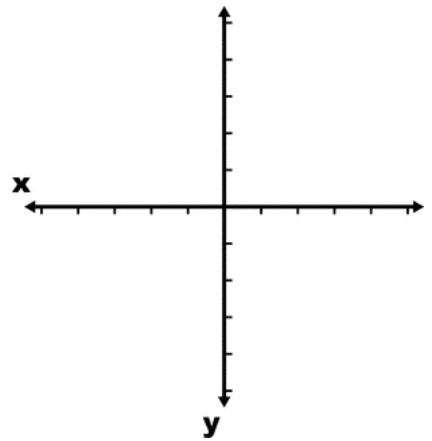
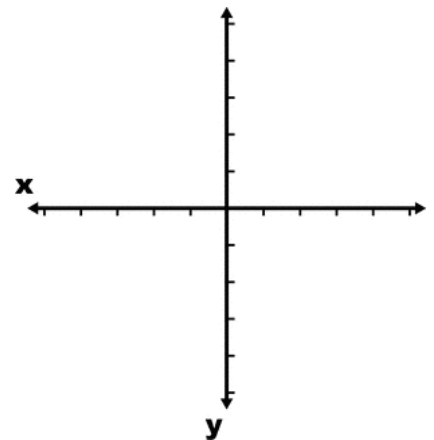


1. Determine the equation of the quadratic function that has a Vertex at $(-3, 34)$, and passes through the point $(1, 2)$.
First provide a rough sketch of the function.



2. Determine the equation of the quadratic function that passes through the $(1, 1)$, if its zeros are $\sqrt{6}$ and $-\sqrt{6}$.
First provide a rough sketch of the function.



3. Find a parabola with same y-intercept as $f(x) = -3x^2 + 5x - 2$

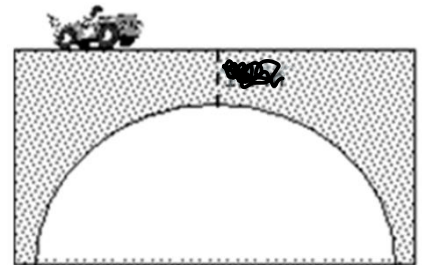
4. Anne-Marie is a construction engineer.

A bridge over a river is an arch in the form of a parabola.

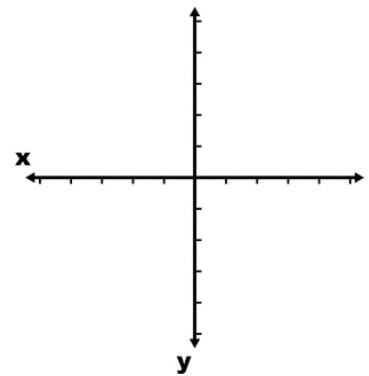
Anne-Marie needs to reinforce the bridge by placing two additional vertical supports 4m from the centre of the bridge.

She knows the following about the structure of the bridge.

- The width of the arch at water level is 32m.
- The height of the bridge is 20m
- The roadway is 2m above the highest point on the arch.



Determine a function that models the bridge.



Try On Your Own

1. Given $x = \sqrt{5}$ and $x = -3\sqrt{5}$ are the roots of a quadratic function and the graph passes through the point $(-5\sqrt{5}, 180)$,

a. determine the equation of the quadratic function

b. write the equation in standard form.

