Graphing Quadratic Functions In Standard Form

Standard Form

$f(x) = ax^2 + bx + c$

Example

$f(x) = 2x^2 - 4x - 6$ ($a=2$, $b=-4$, $c=-6$)

Your Turn

$f(x) = -x^2 + 6x + 1$ ($a=-1$, $b=6$, $c=1$)

Plot the x-intercepts and the vertex

$x = \frac{-b}{2a}$.

$x = \frac{-b}{2a} = \frac{-(-4)}{2(2)}$

$x = \frac{-b}{2a} = \frac{-(6)}{2(-1)}$

Find and sketch axis of symmetry.

$x = 1$

$f(1) = 2(1)^2 - 4(1) - 6 = -8$

$(1, -8)$

$x = 3$

$f(3) = -(3)^2 + 6(3) + 1 = 10$

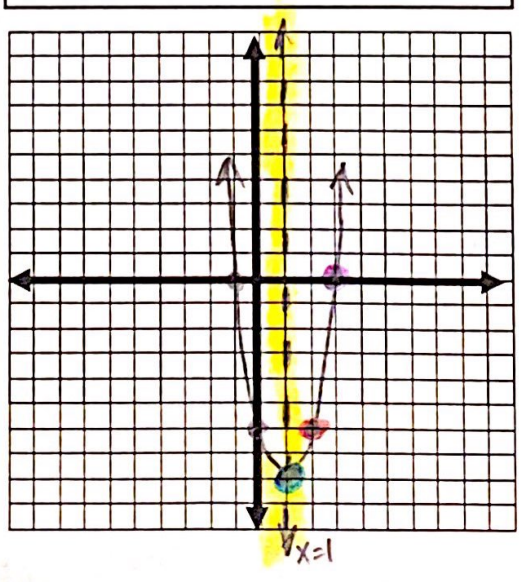
$(3, 10)$

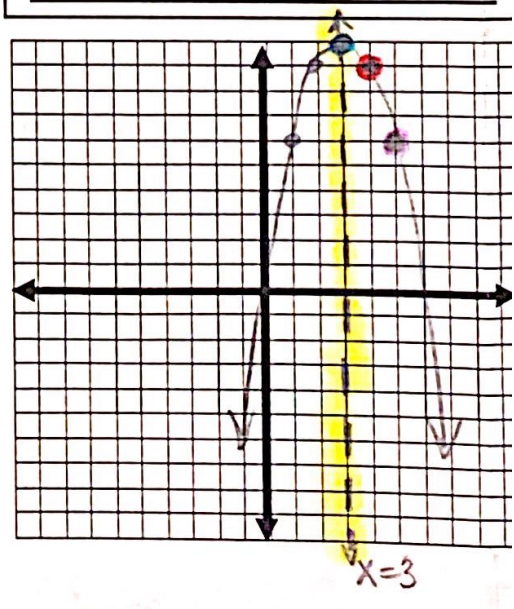
Make a table using two values higher than the x-coordinate of the vertex. Plot these points.

x	f(x)
2	-6
3	0

x	f(x)
4	9
5	6

Using symmetry, find two other points on the curve and plot them.





Connect the points with a smooth curve.