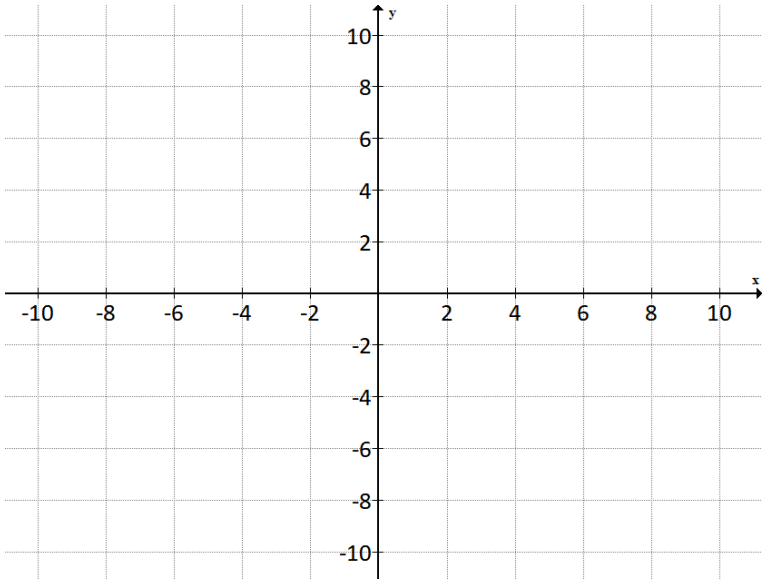
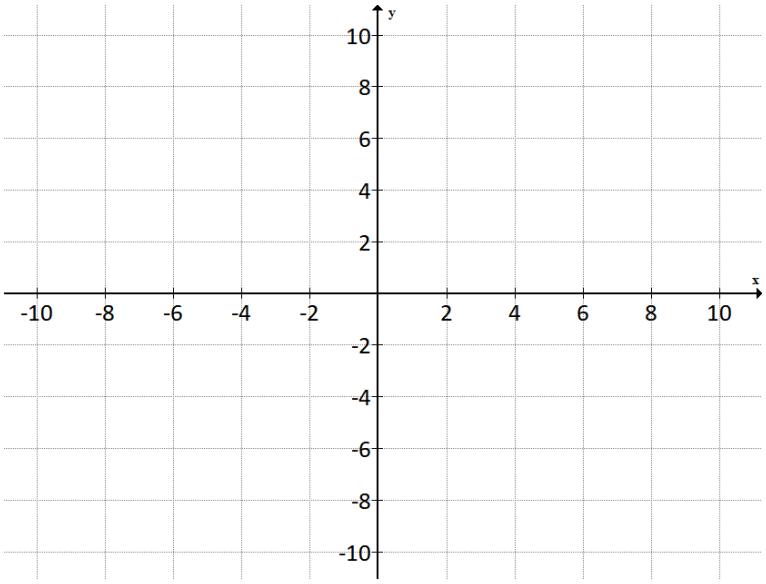
Factoring and Graphing

Example 1: Factor $y = x^2 - 2x - 8$, then graph the corresponding parabola.



Example 2: Factor $y = -2x^2 + 8x$, then graph the corresponding parabola.



Steps to graph a parabola

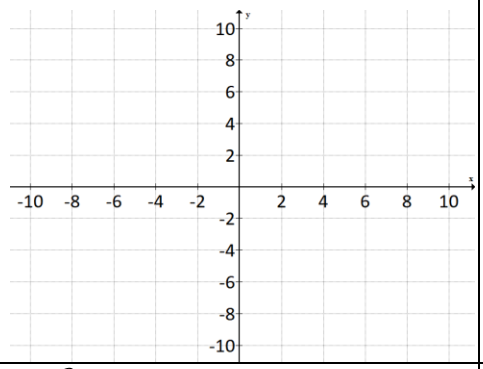
Given the standard form equation ($y = ax^2 + bx + c$)

1. Identify and plot the y-intercept (c)
2. Factor the given equation.
3. Get the zeroes from the factored form equation.
4. Plot the zeroes.
5. Find the x-value of the vertex (halfway between the zeroes)
6. Determine and plot the y-value of the vertex (plug x-value into either equation)
7. Draw a curve through the points.

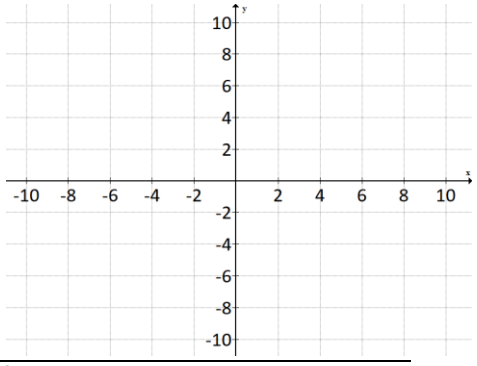
Practice

Sketch a graph of each parabola.

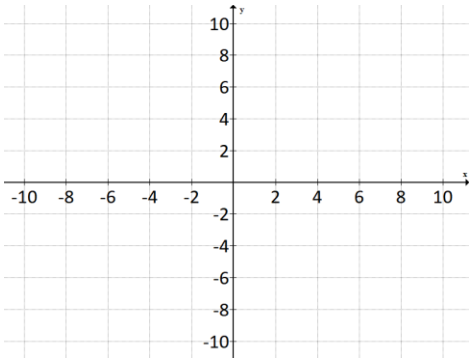
1. $y = x^2 - 2x - 3$



2. $y = -3x^2 - 6x$



3. $y = 2x^2 + 4x - 6$



4. $y = -x^2 + 2x + 8$