

Standard Form for a Quadratic Function: $f(x) = ax^2 + bx + c$

quadratic term: _____ linear term: _____ constant term: _____

Graphing a Quadratic Function from Standard Form:

1. Rewrite in standard form if necessary and identify "a", "b", & "c".
2. Find and plot the axis of symmetry: $x = -\frac{b}{2a}$
3. Find and plot the vertex: $\left(-\frac{b}{2a}, f\left(-\frac{b}{2a}\right)\right)$
4. Find and plot the y-intercept: $(0, c)$
5. Parabolas are symmetric: graph the point opposite the y-intercept.

Example #1: $f(x) = 2 - 4x + x^2$

Rewrite in standard form:

Axis of symmetry: $x = -\frac{b}{2a}$

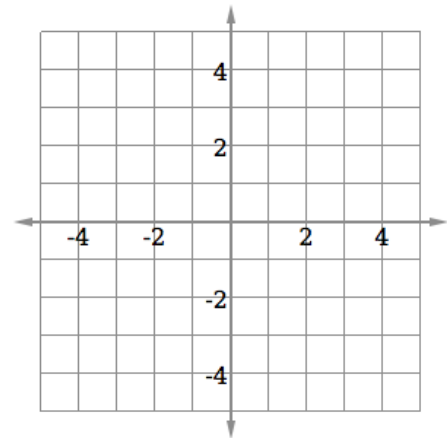
Vertex: The x-coordinate is : _____
The y-coordinate is $f(\quad) =$ _____

y-intercept:

point symmetric with the y-intercept:

Domain:

Range:



Example #2: Graph $f(x) = -2x^2 + 8x - 5$

Axis of symmetry: _____

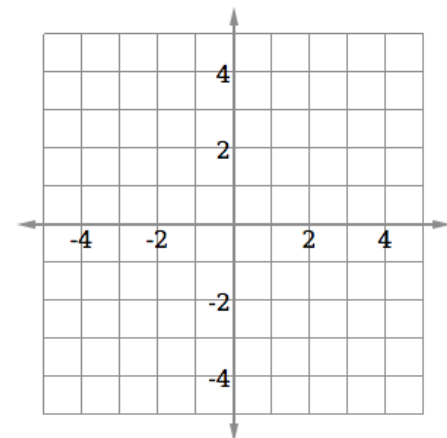
Vertex: The x-coordinate is:
The y-coordinate is $f(\quad) =$

y-intercept: _____

point symmetric with the y-intercept: _____

Domain:

Range:



Example #3: Graph $f(x) = x^2 + 4x - 1$

Axis of symmetry: _____

Vertex: The x-coordinate is: _____

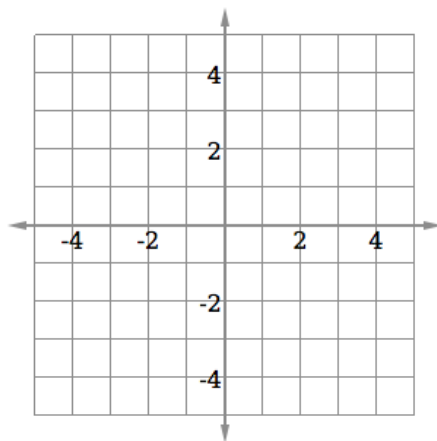
The y-coordinate is $f(\quad)$:

y-intercept: _____

point symmetric with the y-intercept: _____

Domain:

Range:



Ex #4 Vertex Form of a Quadratic Function: $f(x) = a(x - h)^2 + k$

Vertex: _____

$a =$ _____

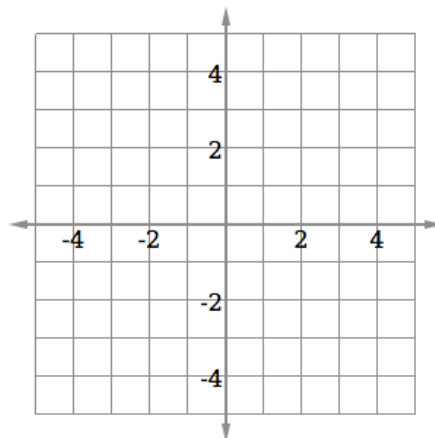
EX # 3: $f(x) = 2(x - 2)^2 - 3$

Vertex:

Axis of symmetry:

Domain:

Range:



If a is positive, then _____.

The vertex will be a _____. We saw this in Example # _____.

If a is negative, then _____.

The vertex will be a _____. We saw this in Example # _____.

The domain of a quadratic function will always be _____

The range of a quadratic function will depend on _____