# Math 115E Activity 13

Chapter 5 Section 1-2
Quadratics

Definition: Quadratic functions *are functions that can be written in the forms*
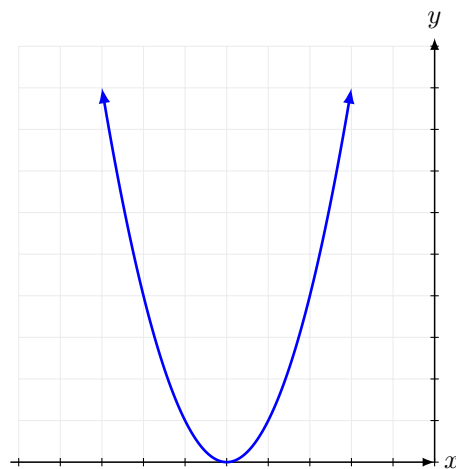
- ***Standard Form***: $f(x) = ax^2 + bx + c$
  where a, b, c are real numbers and $a \neq 0$

- ***Vertex Form***: $f(x) = a(x - h)^2 + k$
  where a, b, k are real numbers with the point (h, k) being the vertex

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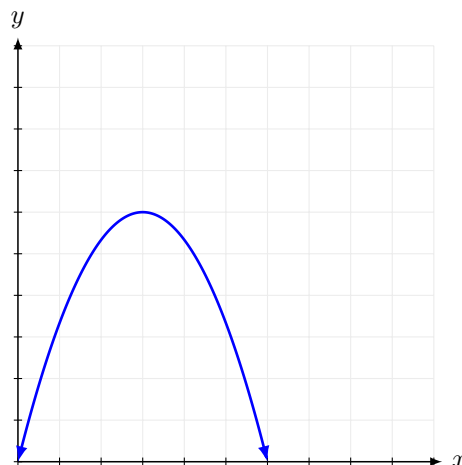**Section 1: Identifying Quadratic functions from a graph**

1. Determine the y-intercept, x-intercepts, vertex and max/min of the function
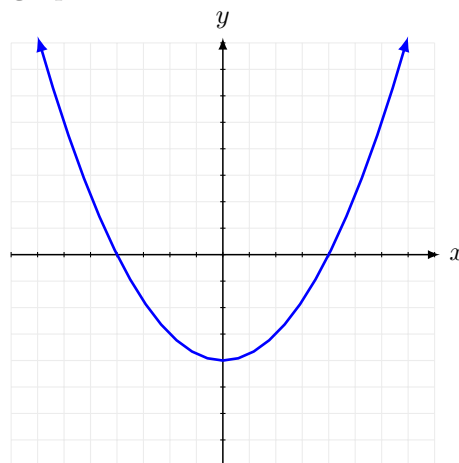
2. Determine the y-intercept, x-intercepts, vertex and max/min of the function

3. Determine the y-intercept, x-intercepts, vertex and max/min of the function

Section 2: Factoring a quadratic expression

Helpful Tips: *When factoring, the form $x^2 + bx + c$ can be factored as $(x + m)(x + n)$*
with real numbers m and n such that: they both multiply to c and yet both add to b

1. Factor $x^2 + x - 6$

2. Factor $x^2 - x - 6$

3. Factor $x^2 - 9x + 20$

4. Factor $x^2 + 7x + 6$

5. Factor $x^2 - 2x - 80$

6. Factor $x^2 - 13x + 42$

5. Factor $x^2 - 4$

6. Factor $x^2 + 2x - 120$

7. Factor $x^2 + 22x + 120$

8. Factor $x^2 + 18x + 32$

9. Factor $x^2 + 26x + 160$

10. Factor $x^2 + 33x + 200$