

Quadratic Functions Assignment **Number 1**

Name:

Date:

This assignment is...

Is Good to go

Needs
Corrections

Make sure that you show all of your work!

1. For each parabola, determine the following, by completing the square, and sketch a rough graph.

- Does it open up or down?
- Y-intercept
- Vertex
- Axis of Symmetry
- Domain and Range
- Vertically compressed or vertically expanded

a. $y = -x^2 + x + 6$

$$(-x^2 + x) + 6 = y$$

$$-(x^2 - x + 6) = y$$

$$\left[\frac{1}{2}(-1)\right]^2 = \frac{1}{4}$$

$$-(x^2 - x + 0.25 - 0.25) + 6$$

$$+ 1(-0.25) = 0.25$$

$$-(x^2 - x + 0.25) + 0.25 + 6$$

$$-(x^2 - x + 0.25) + 6.25$$

$$-(x - 0.5)^2 + 6.25$$

$$a = -1$$

$$p = 0.5$$

$$q = 6.25$$

(i) Parabola down

(ii) Y-intercept: $y = 6$

(iii) Vertex: $(0.5, 6.25)$

(iv) Axis of Symmetry
 $x = 0.5$

(v) Domain $(-\infty < x < \infty)$

~~$\{x + 1 \in \mathbb{R}\}$~~ Range
 $y \leq 6.25$

(vi) Vertically expanded
vertical in x-axis