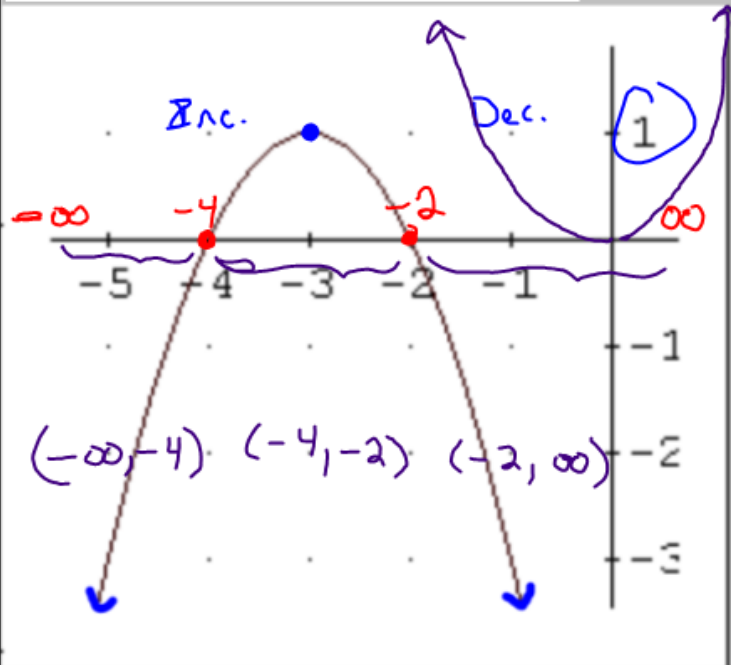


$$y = -x^2 - 6x - 8$$



Domain: $(-\infty, \infty)$ Range: $(-\infty, 1]$

x-int: -4 & -2 y-int: -8

Maximum: 1 Minimum: N/A

Intervals of Increase: $(-\infty, -3)$

Intervals of Decrease: $(-3, \infty)$

Positive Intervals: $(-4, -2)$

Negative Intervals: $(-\infty, -4) \cup (-2, \infty)$

End Behavior:

as $x \rightarrow -\infty$ $y \rightarrow -\infty$

as $x \rightarrow \infty$ $y \rightarrow -\infty$

Axis of Symmetry: $x = -3$

Transformations: \star Reflected
Left 3
Up 1

$$y = a(x-h)^2 + k$$

$$y = -1(x+3)^2 + 1$$

Transformations

Shifts  horizontal
vertical

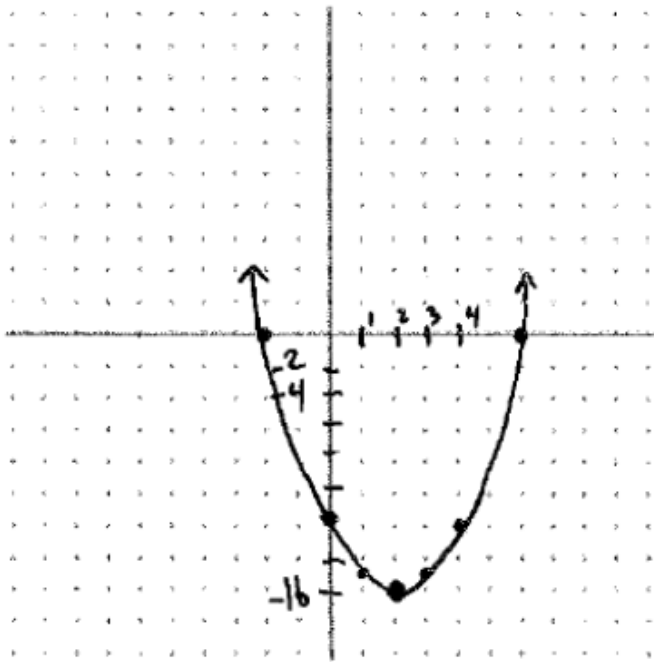
Reflections

Stretches

HW #10:

Graphing Quadratics and
Identifying Characteristics
Answer Key

#1) $y = (x - 6)(x + 2)$

Vertex: $(2, -16)$ Domain: $(-\infty, \infty)$ Range: $[-16, \infty)$ x-int: $(-2, 0)$ $(6, 0)$ y-int: $(0, -12)$ Max: N/A Min: -16 Axis of Symmetry: $x = 2$

x	y
0	-12
1	-15
2	-16
3	-15
4	-12

Interval of Increase: $(2, \infty)$ Interval of Decrease: $(-\infty, 2)$ Positive: $(-\infty, -2)$
 $(6, \infty)$ Negative: $(-2, 6)$

End Behavior:

As $x \rightarrow -\infty$ $y \rightarrow \infty$ As $x \rightarrow \infty$ $y \rightarrow \infty$

Vertex Form:

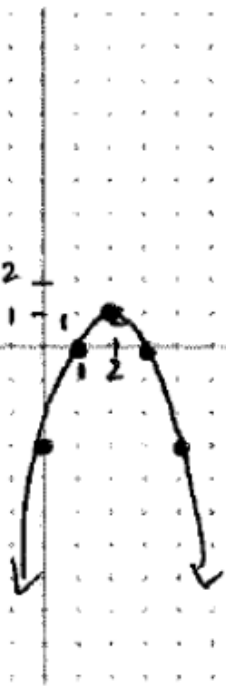
$$y = (x - 2)^2 - 16$$

Transformations:

Right 2

Down 16

$$\#2) y = -1(x-3)(x-1)$$



Vertex: $(2, 1)$

Domain: $(-\infty, \infty)$

Range: $(-\infty, 1]$

x-int: $(1, 0)$ $(3, 0)$

y-int: $(0, -3)$

x	y
0	-3
1	0
2	1
3	0
4	-3

Max: 1 Min: N/A Axis of Symmetry: $x = 2$

Interval of Increase: $(-\infty, 2)$

Interval of Decrease: $(2, \infty)$

Positive: $(1, 3)$

Negative: $(-\infty, 1)$ $(3, \infty)$

End Behavior:

Vertex Form:

As $x \rightarrow -\infty$ $y \rightarrow -\infty$

$$y = -1(x-2)^2 + 1$$

As $x \rightarrow \infty$ $y \rightarrow -\infty$

Transformations:

Right 2

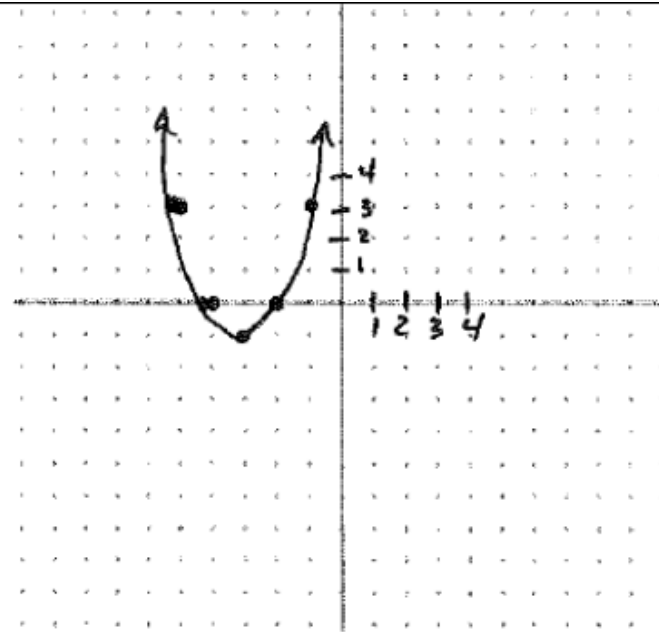
Up 1

Reflected Over
x-Axis

#3) $y = (x + 2)(x + 4)$

Vertex: $(-3, -1)$

x	y
-5	3
-4	0
-3	-1
-2	0
-1	3

Domain: $(-\infty, \infty)$ Range: $[-1, \infty)$ x-int: $(-4, 0)$ $(-2, 0)$ y-int: $(0, 8)$ Max: N/A Min: -1 Axis of Symmetry: $x = -3$ Interval of Increase: $(-3, \infty)$ Interval of Decrease: $(-\infty, -3)$ Positive: $(-\infty, -4)$ $(-2, \infty)$ Negative: $(-4, -2)$

End Behavior:

Vertex Form: $y = (x+3)^2 - 1$ As $x \rightarrow -\infty$ $y \rightarrow \infty$ Transformations: Left 3, Down 1As $x \rightarrow \infty$ $y \rightarrow \infty$

#4) $y = -1(x+5)(x-1)$

Vertex: $(-2, 9)$

x	y
-4	5
-3	8
-2	9
-1	8
0	5

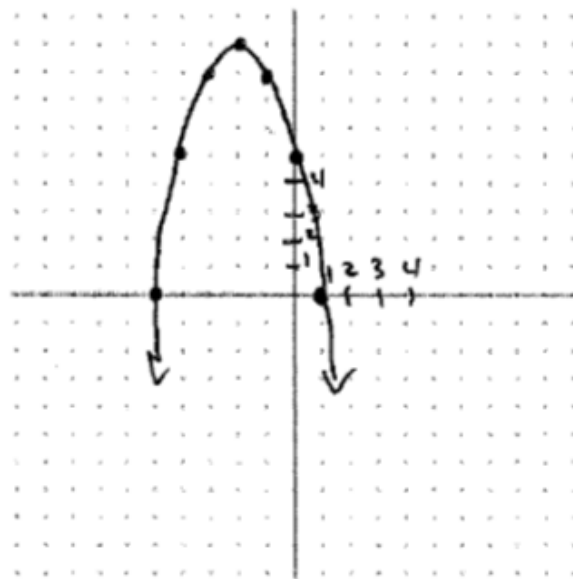
Domain: $(-\infty, \infty)$ Range: $(-\infty, 9]$ x-int: $(-5, 0)$ $(1, 0)$ y-int: $(0, 5)$

Max: 9

Min: N/A

Interval of Increase: $(-\infty, -2)$ Positive: $(-5, 1)$

End Behavior:

As $x \rightarrow -\infty$ $y \rightarrow -\infty$ As $x \rightarrow \infty$ $y \rightarrow -\infty$ Axis of Symmetry: $x = -2$ Interval of Decrease: $(-2, \infty)$ Negative: $(-\infty, -5)$ $(1, \infty)$ Vertex Form: $y = -1(x+2)^2 + 9$

Transformations:

Left 2

Up 9

* Reflected over x-axis

Practice with Quadratics

Quiz Tuesday:

- Graphing Quadratic Equations
- Characteristics of Quadratic Graphs

No Homework Today!!