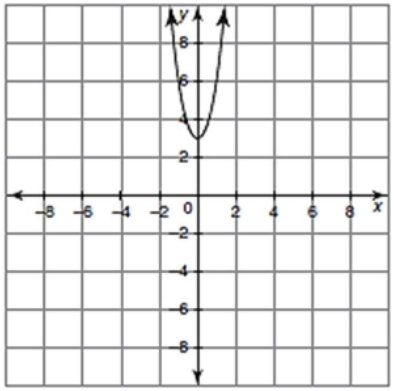
Thursday, February 28th

Please have out last night's homework and yesterday's notes.

Practice: Describe the characteristics of the following graphs:



Domain: _____ **Range:** _____

Vertex: _____ **Axis of Sym.** _____

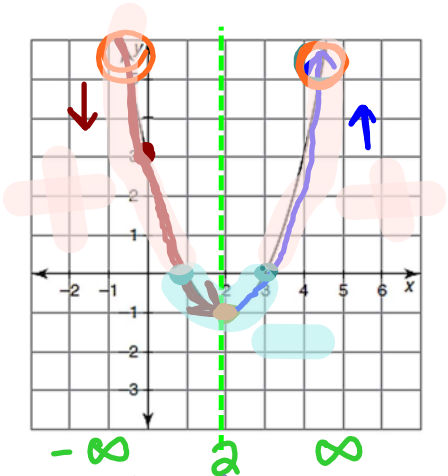
Y-Intercept: _____ **Zeroes:** _____

Extrema: _____ **Max/Min Value:** _____

Int of Inc: _____ **Int of Dec:** _____

Positive: _____ **Negative:** _____

End Behavior: As x → -∞, f(x) → _____. As x → ∞, f(x) →_____



ℝ $(-\infty, \infty)$

Domain: all real #s **Range:** $[-1, \infty)$

Vertex: $(2, -1)$ **Axis of Sym.** $x = 2$

Y-Intercept: $(0, 3)$ **Zeroes:** $x = 1, x = 3$

Extrema: minimum **Max/Min Value:** $y = -1$

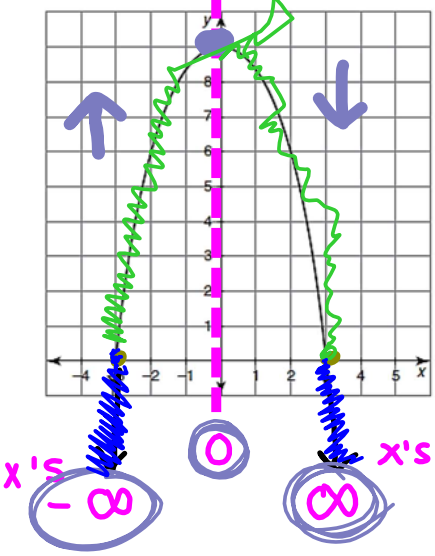
Int of Inc: $(2, \infty)$ **Int of Dec:** $(-\infty, 2)$

Positive: $(-\infty, 1) \cup (3, \infty)$ **Negative:** $(1, 3)$

End Behavior: As x → -∞, f(x) → ∞. As x → ∞, f(x) → ∞

$-\infty$ 2 ∞

L → R



Domain: all real #s **Range:** $(-\infty, 9)$

Vertex: $(0, 9)$ **Axis of Sym.** $x = 0$

Y-Intercept: $(0, 9)$ **Zeroes:** $x = -3, x = 3$

Extrema: maximum **Max/Min Value:** $y = 9$

Int of Inc: $(-\infty, 0)$ **Int of Dec:** $(0, \infty)$

Positive: $(-3, 3)$ **Negative:** $(-\infty, -3) \cup (3, \infty)$

End Behavior: As x → -∞, f(x) → $-\infty$. As x → ∞, f(x) → $-\infty$

x's 0 x's

$-\infty$ ∞

Algebra 1
Unit 11 Day 3 Practice

Name: Ms. Shaffer ☺

Graph the following function and identify it's characteristics.

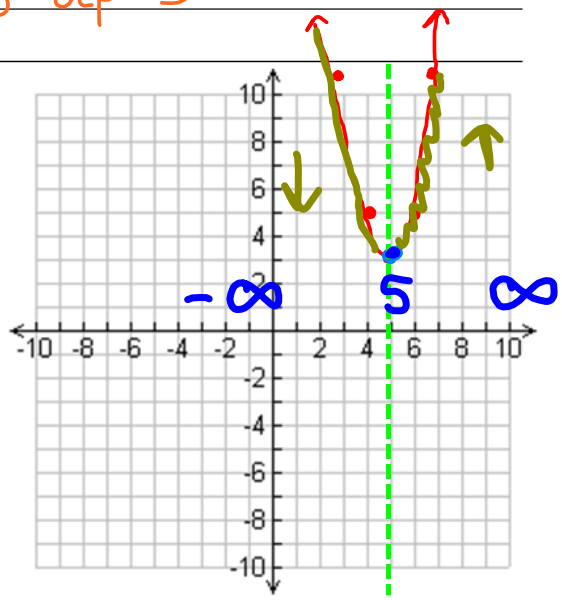
$$y = 2(x-5)^2 + 3$$

$a = 2$
$h = 5$
$k = 3$
} vertex: (5, 3)

Transformations: no reflection; vertical stretch of 2; right 5; up 3

x	y
2	21
3	11
4	5
5	3
6	5
7	11
8	21

plug in 0 for x



Domain: all real #s
Range: [3, ∞)
X-Intercepts: none
Y-Intercepts: (0, 53)
Zeros: none
Positive: all real #s
Negative: none

Axis of Symmetry: x = 5
Vertex: (5, 3)
Extrema: min → y = 3
Interval of Increase: (5, ∞)
Interval of Decrease: (-∞, 5)
As $x \to -\infty$, $f(x) \to$ ∞
As $x \to \infty$, $f(x) \to$ ∞
} End Behavior

4 minutes

- pack up except pencil
- go to the bathroom
- be seated by the end of the 4 minutes

If a is positive...

no reflection

opens up

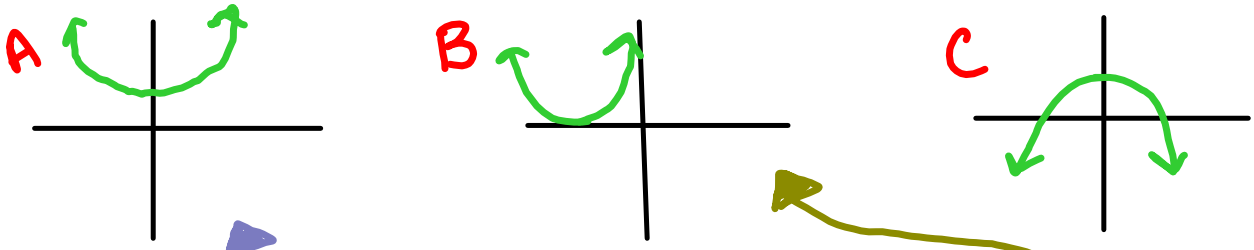
minimum

If a is negative...

reflection across x-axis

opens down

maximum



$y = x^2 + 3$ up 3

$y = (x + 3)^2$ left 3

$y = -\frac{7}{3}(x+1)^2 - 4$

Transformations:

- reflection over x-axis
- vertical stretch of $\frac{7}{3}$
- left 1
- down 4

vertex: $(-1, 4)$

↶ maximum