Homework Questions

$y = 4x^2 + 7x$

$ax^2 + bx + c$

$-\frac{b}{2a}$ $\quad \frac{-7}{2(4)} = -\frac{7}{8}$

$4\left(-\frac{7}{8}\right)^2 + \frac{7}{1}\left(-\frac{7}{8}\right)$

$\frac{4}{1}\left(\frac{49}{64}\right) - \frac{49}{8}$

$\frac{196}{64} - \frac{392}{64} = -\frac{196}{64}$

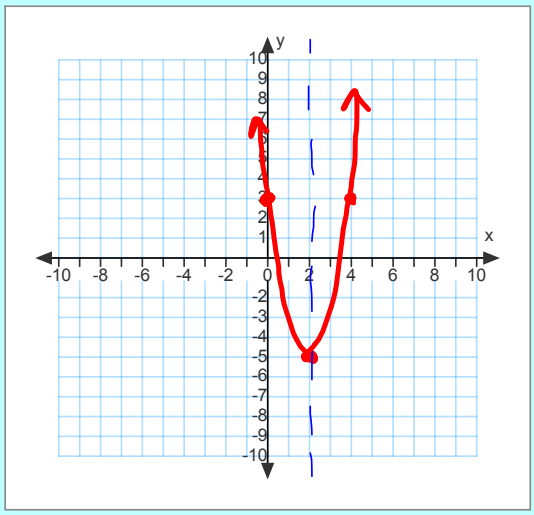
Graphing given Vertex Form: $y=2(x-2)^2-5$

Axis of Symmetry: $x=2$

Vertex: $(2,-5)$

y-intercept: $2(0-2)^2-5$

You may have to plug in a point...



$8-5$

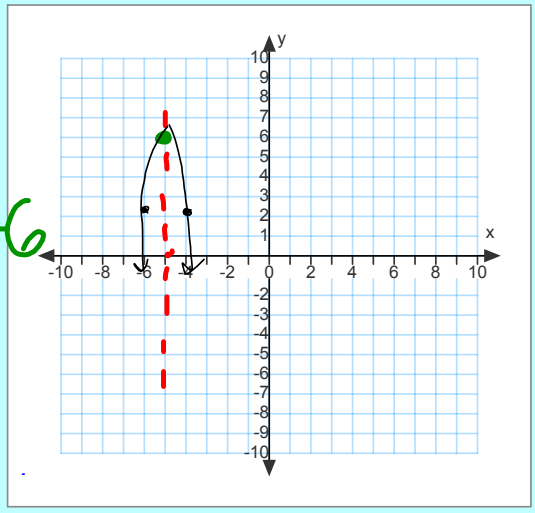
Graphing given Vertex Form: $y=-4(x+5)^2+6$

Axis of Symmetry: $x=-5$

Vertex: $-5, 6$

y-intercept: -94 $-4(0+5)^2+6$ $-4 \cdot 25+6$

You may have to plug in a point...



x	y
-4	2

$$-4(-4+5)^2+6$$

$$-4(1)^2+6$$

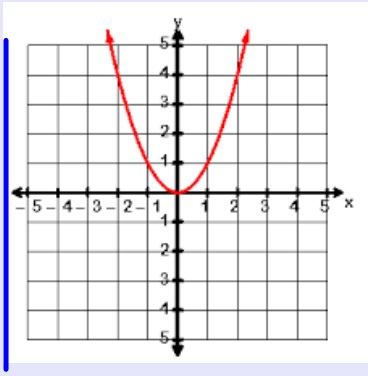
$$-4+6=2$$

Domain - The domain is the set of all possible x-values which will make the function "work", and will output real y-values.

Range - The range is the resulting y-values we get after substituting all the possible x-values.

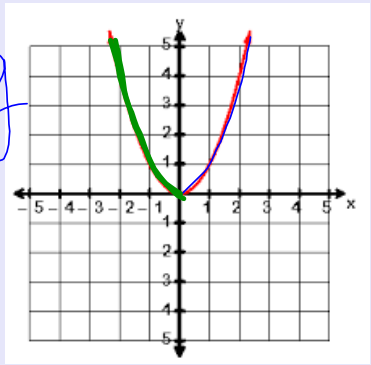
D: $\mathbb{R}$ $\mathbb{R}$

R: 0 to ∞



~~Increasing-~~All possible x values where the function has positive slope or is going up hill

~~Decreasing-~~All possible x values where the function has negative slope or is going down hill

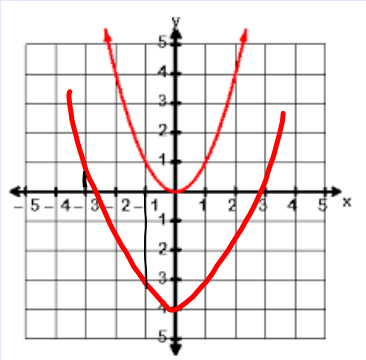


increasing
0 to ∞

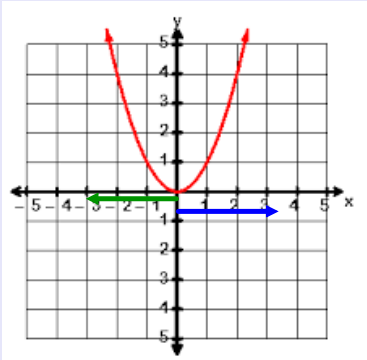
decreasing
-∞ to 0

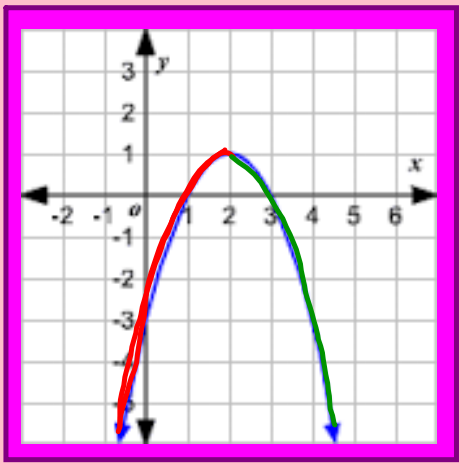
~~Where is a function positive?~~ When the function lies above the x-axis

~~Where is a function negative?~~ When the function lies below the x-axis



~~End Behavior-~~ Describes where the arrows at the end of the function are going.





Vertex: (2, 1) Axis of Symmetry: $x = 2$

y intercept: (0, -3)

Domain: $\mathbb{R}$ Range: $-\infty$ to 1

Increasing: $-\infty$ to 2 Decreasing: 2, to ∞

x value where y is positive: 2

x value where y is negative: -3

Minimum Maximum

As $x \to \infty$ $f(x) \to -\infty$

As $x \to -\infty$ $f(x) \to -\infty$

Homework!

WS 10.29 #1-8