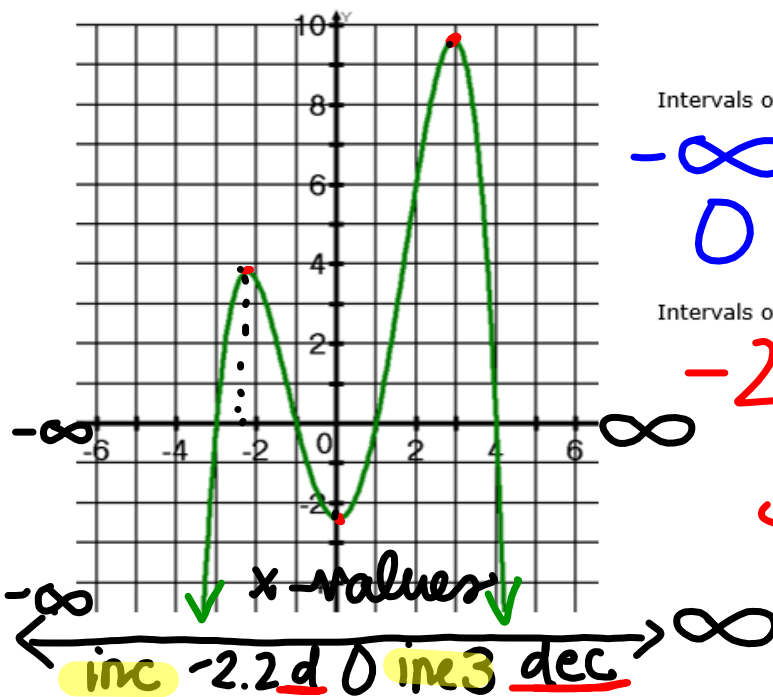


More Characteristics

Characteristic	Definition	Example
Interval of Increasing	The part of the graph that is increasing as you read from LEFT TO RIGHT on the <u>x-axis</u> . <i>both only use x-values</i>	
Interval of Decreasing	The part of the graph that is decreasing as you read from LEFT TO RIGHT on the <u>x-axis</u> .	

Label the coordinates of your extrema. Then, find the intervals of increase and decrease for the graph below.



never equal

Intervals of Increase:

$$-\infty < x < -2.2$$

$$0 < x < 3$$

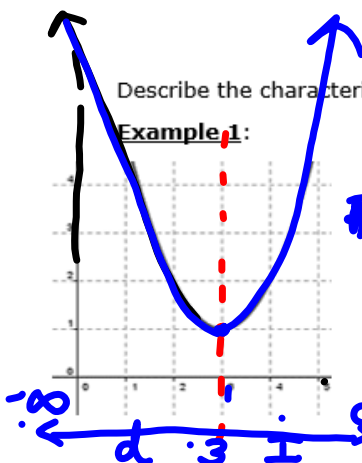
Intervals of Decrease:

$$-2.2 < x < 0$$

$$3 < x < \infty$$

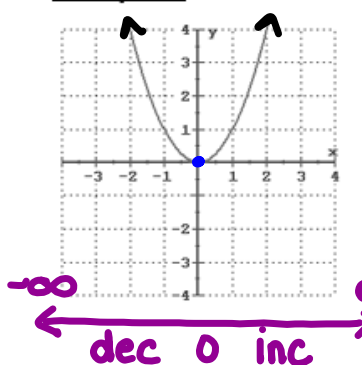
Describe the characteristics of the following graphs:

Example 1:



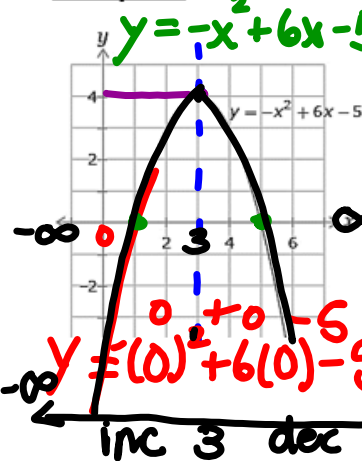
Vertex: $(3, 1)$	Axis of Symmetry: $x = 3$
Extrema: min	Max/Min Value: $y = 1$
Domain: \mathbb{R}	Range: $y \geq 1$
$a > 0$	Y-Intercept: ---
X-Intercepts: none	Zeros: none
Int. of Increase: $3 < x < \infty$	
Int. of Decrease: $-\infty < x < 3$	
End Behavior: As $x \rightarrow -\infty, y \rightarrow +\infty$	
As $x \rightarrow \infty, y \rightarrow +\infty$	

Example 2:



Vertex: $(0, 0)$	Axis of Symmetry: $x = 0$
Extrema: min	Max/Min Value: $y = 0$
Domain: \mathbb{R}	Range: $y \geq 0$
$a > 0$	Y-Intercept: $(0, 0)$
X-Intercepts: $(0, 0)$	Zeros: $x = 0$
Int. of Increase: $0 < x < \infty$	
Int. of Decrease: $-\infty < x < 0$	
End Behavior: As $x \rightarrow -\infty, y \rightarrow +\infty$	
As $x \rightarrow \infty, y \rightarrow +\infty$	

Example 3:



Vertex: $(3, 4)$	Axis of Symmetry: $x = 3$
Extrema: max	Max/Min Value: $y = 4$
Domain: \mathbb{R}	Range: $y \leq 4$
$a < 0$	Y-Intercept: $(0, -5)$
X-Intercepts: $(1, 0)$ $(5, 0)$	Zeros: $x = 1, 5$
Int. of Increase: $-\infty < x < 3$	
Int. of Decrease: $3 < x < \infty$	
End Behavior: As $x \rightarrow -\infty, y \rightarrow -\infty$	
As $x \rightarrow \infty, y \rightarrow -\infty$	

Unit 3A
HW: 1-3
pgs.