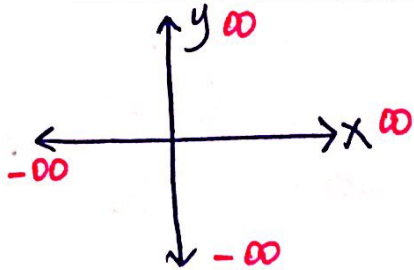


*anything w/ arrows has a domain of $(-\infty, \infty)$

Quadratics



Characteristics

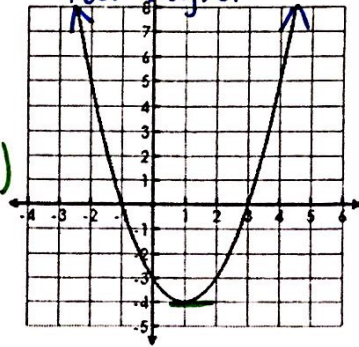
Domain: $(-\infty, \infty)$

Range: y-values (height) $(-\infty, \infty)$

Vertex: $(1, -4)$

AOS: $x=1$

line of symmetry
*vertex \rightarrow highest / lowest point



Characteristics

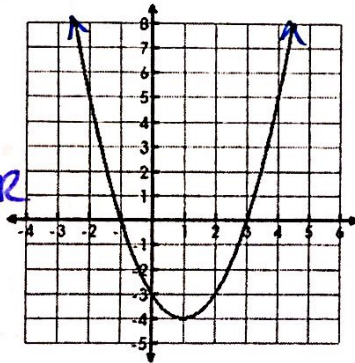
(x-intercept)

Zeros:

$(-1, 0)$ $(3, 0)$ or $x = -1, 3$

Y-intercept:

$(0, -3)$ or $y = -3$



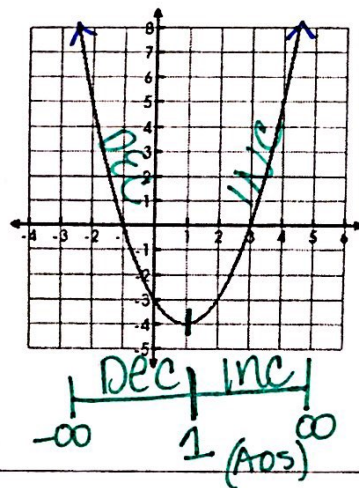
Characteristics

Interval of Increase:

$(1, \infty)$

Interval of Decrease:

$(-\infty, 1)$



max \swarrow \searrow min

Characteristics

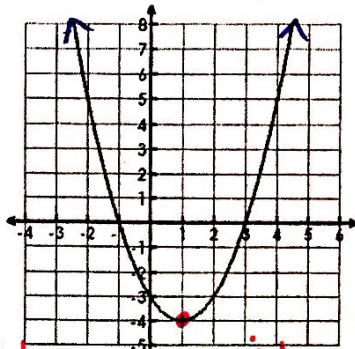
Extrema:

min $(1, -4)$

End Behavior:

$x \rightarrow \infty, f(x) \rightarrow \infty$

$x \rightarrow -\infty, f(x) \rightarrow \infty$



Where arrows are pointing - always will point in the same direction.

$\frac{y_2 - y_1}{x_2 - x_1}$

$x_2 - x_1$

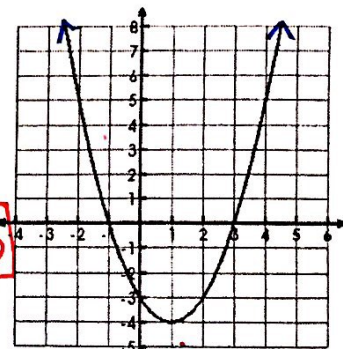
Characteristics

SLOPE

Rate of Change from $-1 \leq x \leq 2$

$(-1, 0), (-2, 5)$

$\frac{5 - 0}{-2 - (-1)} = \frac{5}{-1} = -5$



① write 2 ordered pairs

Example 2

Characteristics

Domain:

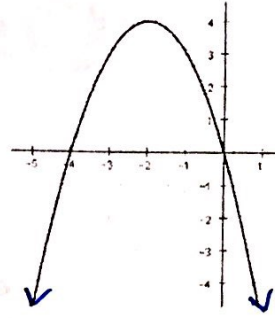
$$(-\infty, \infty)$$

Range:

$$(-\infty, 4)$$

Vertex: $(-2, 4)$

AOS: $x = -2$



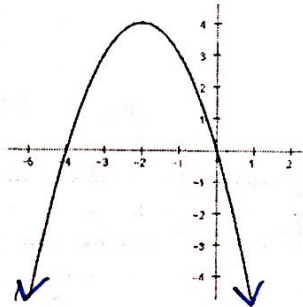
Characteristics

Zeros:

$$(0, 0) \quad (-4, 0)$$

Y-intercept:

$$(0, 0)$$



Characteristics

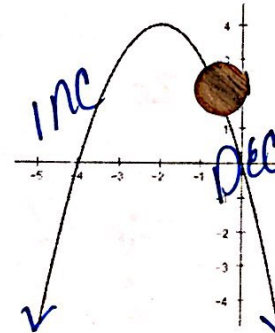
$$\begin{array}{c} \text{inc} \quad \text{dec} \\ \hline -\infty \quad -2 \quad \infty \end{array}$$

Interval of Increase:

$$(-\infty, -2)$$

Interval of Decrease:

$$(-2, \infty)$$



Characteristics

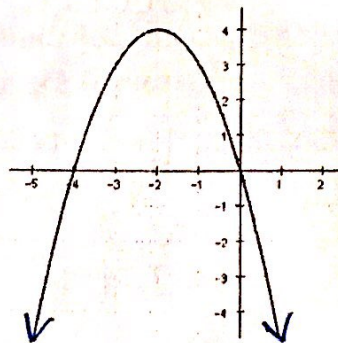
Extrema:

$$(-2, 4)$$

End Behavior:

$$x \rightarrow \infty, f(x) \rightarrow -\infty$$

$$x \rightarrow -\infty, f(x) \rightarrow -\infty$$



Characteristics

Rate of change

from $-4 \leq x \leq -2$

$$(-4, 0) \quad (-2, 4)$$

$$\frac{4-0}{-2-(-4)} = \frac{4}{2} = 2$$

$$ROC = 2$$

