

1. Find the average rate of change of $h(t)$ on the interval $[0,2]$.

X	Y
0	8
1	168
2	296

$$\frac{f(2) - f(0)}{2 - 0}$$

$$\frac{296 - 8}{2 - 0} = \frac{288}{2}$$

$$= 144$$

2. What is the vertex of $f(x) = -5|x + 3| + 1$ and does it represent a minimum or maximum of the function.

maximum

$(-3, 1)$



3. Identify the *vertex* and *y-intercept* of the graph of the function

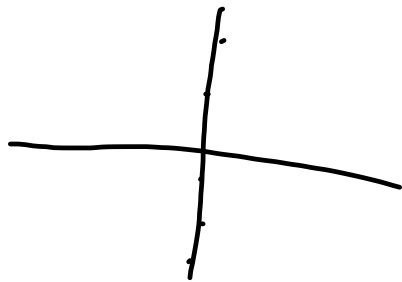
$$y = 3(x - 2)^2 + 2.$$

$$3(-2)^2 + 2$$

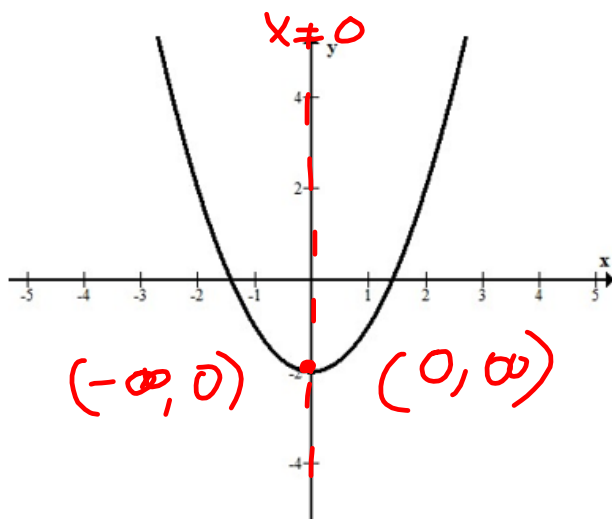
$$3(4) + 2 = 14$$

$$\text{vertex: } (2, 2)$$

$$\text{y-int: } (0, 14)$$



4. Given the graph below state the intervals where the function is increasing or decreasing.



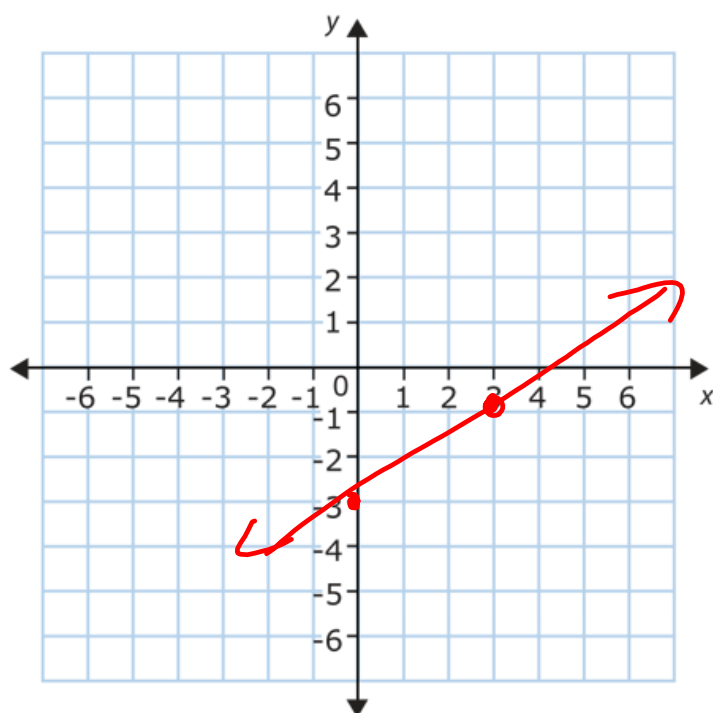
$$I : (0, \infty)$$

$$D : (-\infty, 0)$$

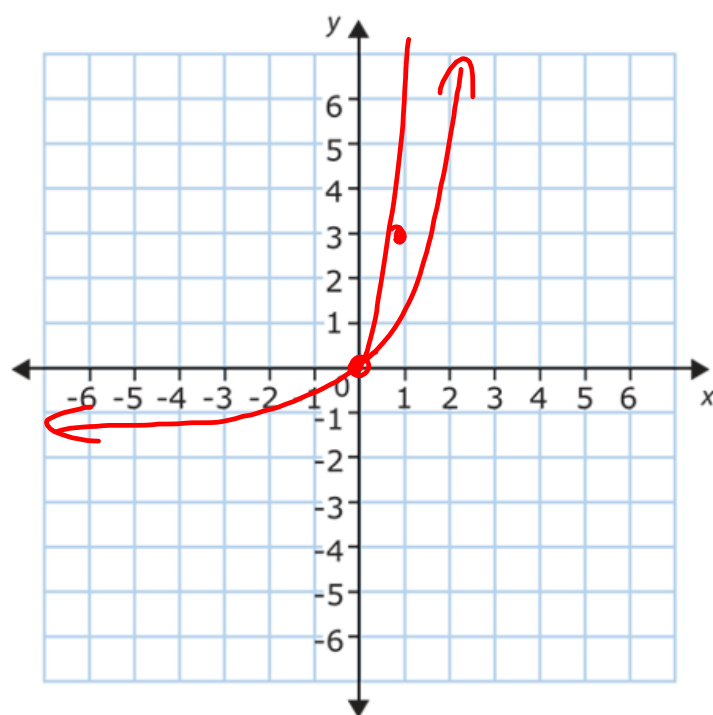
5. Graph $f(x) = \frac{2}{3}x - 3$?

$b = -3$

$m = \frac{2}{3}$

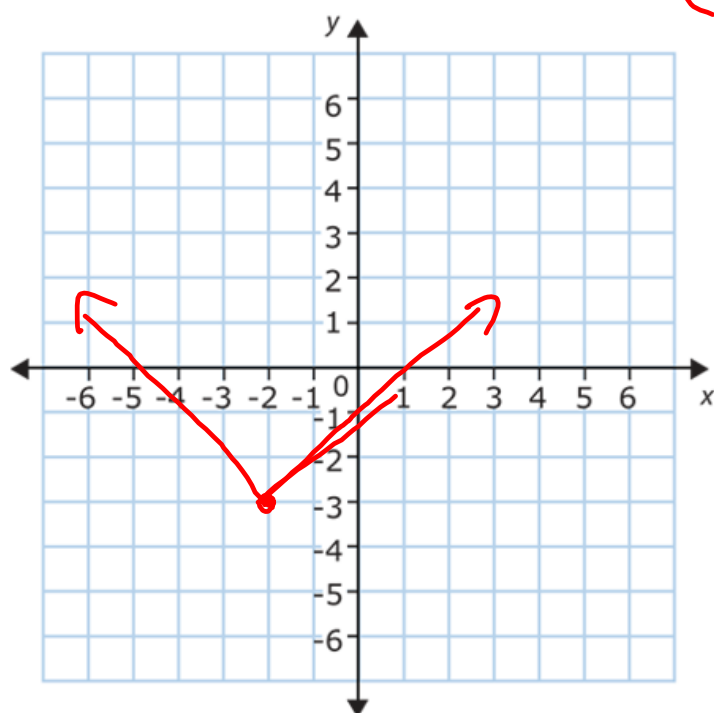


6. Graph $f(x) = 4^x - 1$?

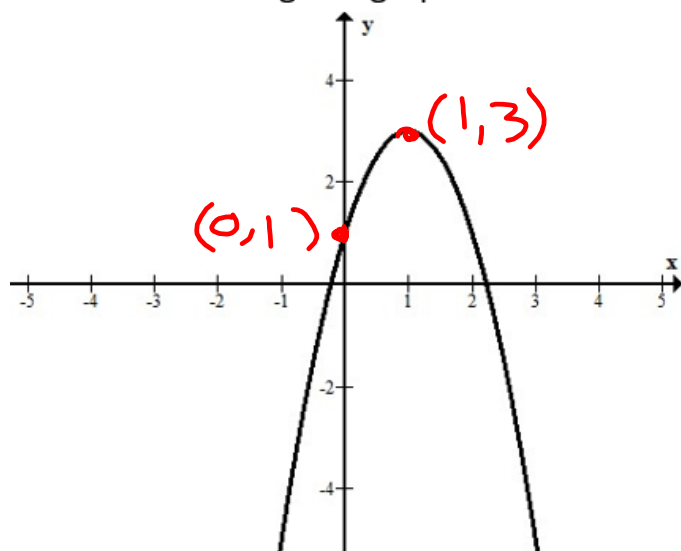


7. Graph $f(x) = |x + 2| - 3$

$(-2, 3)$



8. Estimate the average rate of change of a function on the interval $[0, 1]$ from the given graph.



$$\frac{f(1) - f(0)}{1 - 0}$$

$$\frac{3 - 1}{1 - 0} = \frac{2}{1}$$

$$= 2$$

Geraldo goes every year to a cliff diving competition in Acapulco. The competitors dive off of cliffs of varying heights into the ocean. His height above the ocean as a function of time can be modeled by the function $h(t) = -16(x - .5)^2 + 156$, where t is time in seconds and h is height in feet.

$$\begin{aligned} & (.5, 156) \\ & (t, h(t)) \end{aligned}$$

9. How long did it take for Geraldo to reach his maximum height above the ocean?

.5 sec

10. How far above the ocean did he find himself?

156 ft