

Math 111 Quiz #1 Answers

1. (a) The value $f(0)$ is the y -coordinate of the point on the curve for which $x = 0$. The point $(0, 4)$ is on the curve, so $f(0) = 4$.

(b) We are looking for the x -coordinates of the points on the curve for which $y = f(x) = 1$. The graph has 3 points with y -coordinate equal to 1: $(1, 1)$, $(3, 1)$, $(5, 1)$.

So, the x -values are $x = 1$, $x = 3$, and $x = 5$.

(c) The average rate of change of f from $x = 2$ to $x = 5$ is $\frac{f(5)-f(2)}{5-2} = \frac{1-0}{5-2} = \frac{1}{3}$.

(d) The function $f(x)$ is increasing on the interval $2 < x < 4$ OR $(2, 4)$.

2. (a) $C = 2500 + 5x$

(b) We are trying to find x when $C = 3000$. $\Rightarrow 3000 = 2500 + 5x$
 $500 = 5x \Rightarrow x = 100$

So, you can make 100 bracelets for \$3000.

3. The slope of the line is $m = \frac{1-(-2)}{-5-1} = -\frac{1}{2}$

Using the point-slope form of a linear equation:

$$y + 2 = -\frac{1}{2}(x - 1) \quad \text{OR} \quad y - 1 = -\frac{1}{2}(x + 5)$$

In slope-intercept form:

$$y = -\frac{1}{2}x - \frac{3}{2}$$