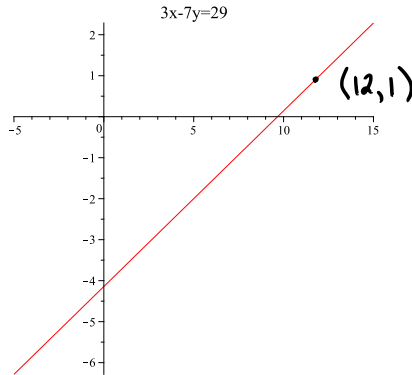
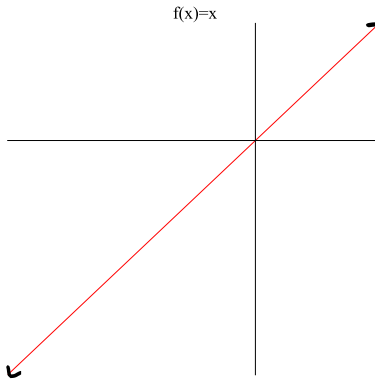


**Question 1.** Consider the equation along with its graph below. Choose **all** statements that apply.



- (a) I see no obvious integer values that satisfy the equation.
- (b) To find integers that satisfy the equation, it is necessary to put the equation into the form  $y = mx + b$ .
- (c) Obvious integer values that satisfy the equation  $3x - 7y = 29$  are  $x = 12, y = 1$  (fill in blank).
- (d) For any solution, it must be true that  $x > 0$ . No - for any  $x$  value, there is a  $y$  value that makes the equation true.

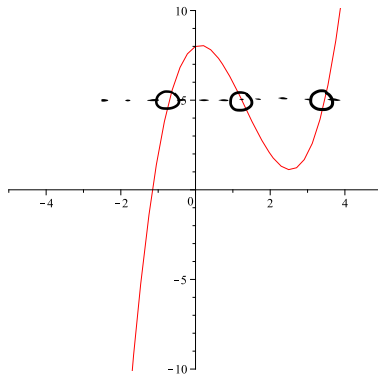
**Question 2.** Consider the function  $f(x) = x$  along with its graph. Choose the ONE sentence that best describes the graph.



- (a) This function is always increasing. As you move from left to right
- (b) This function is always decreasing.
- (c) This function has both an interval on which it is increasing and an interval on which it is decreasing.
- (d) This function is constant.

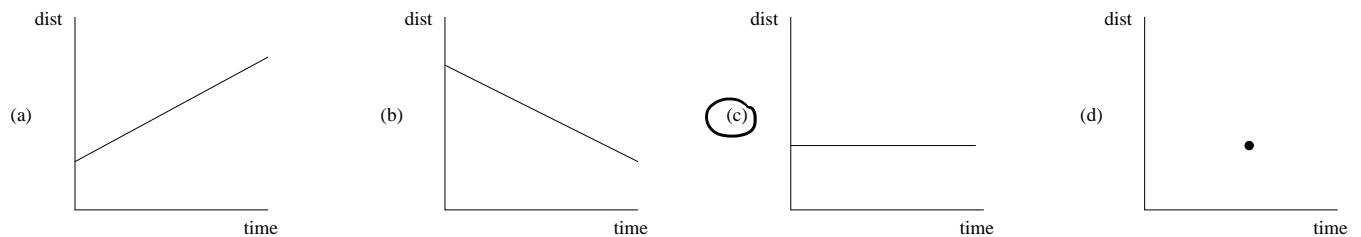
**Question 3.** Suppose you are given the graph of the function  $y = f(x)$  and you are told that  $f(3) = 7$ . Is there a particular point you know must be on the graph? If so, what is it? **(3,7)**

**Question 4.** Consider the graph of the function  $f(x)$  below. Which ONE of the following statements is true?



- (a) The equation  $f(x) = 5$  has no solutions.
- (b) The equation  $f(x) = 5$  has exactly one solution.
- (c)** The equation  $f(x) = 5$  has at least three solutions. *It intersects the line  $y=5$  in three places.*
- (d) Nothing about the solutions of  $f(x) = 5$  can be determined from the graph.

**Question 5.** Choose the graph that best matches the verbal statement: “Chris stood stock still in front of a statue for a long time.” (Note: dist on the vertical axis stands for **distance from the statue.**)

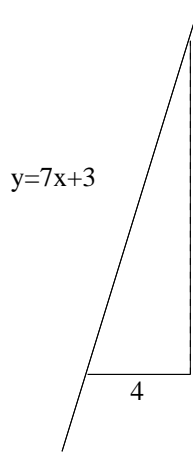


*As time passed, his distance remained constant.*

**Question 6.** Let  $N = f(t)$  be the number of cans of soda Penelope has consumed by age  $t$ , where  $t$  is measured in years. Describe what the following mean in practical terms. Be sure to include units.

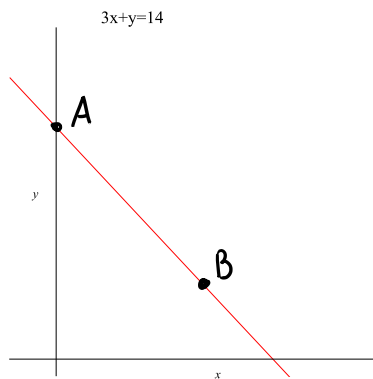
- (a)  $f(15) = 350$  *By age 15 years, Penelope has consumed 350 cans of soda.*
- (b)  $f^{-1}(50) = 6$  *The age by which she has consumed 50 cans of soda is 6 years.*

**Question 7.** Consider the following graph of the line  $y = 7x + 3$ . Given that the horizontal segment indicated has length 4, consider the dotted vertical segment. Indicate which of the following statements is true about the dotted line.



- (a) The length of this line cannot be determined from the information given.
- (b) The length of this line is 7.
- (c) The length of this line is 28.  $\frac{\Delta y}{\Delta x} = 7$ , and  $\Delta x = 4$ , so  $\Delta y = 28$
- (d) The length of this line is 31.

**Question 8.** Consider the graph below.



- (a) Can you determine the coordinates of the point A? If so, what are they? If not, explain why not.  
Yes:  $x = 0$ , so  $3(0) + y = 14 \Rightarrow y = 14$  (0, 14)
- (b) Can you determine the coordinates of the point B? If so, what are they? If not, explain why not.  
No. There is no scale on the x-axis.