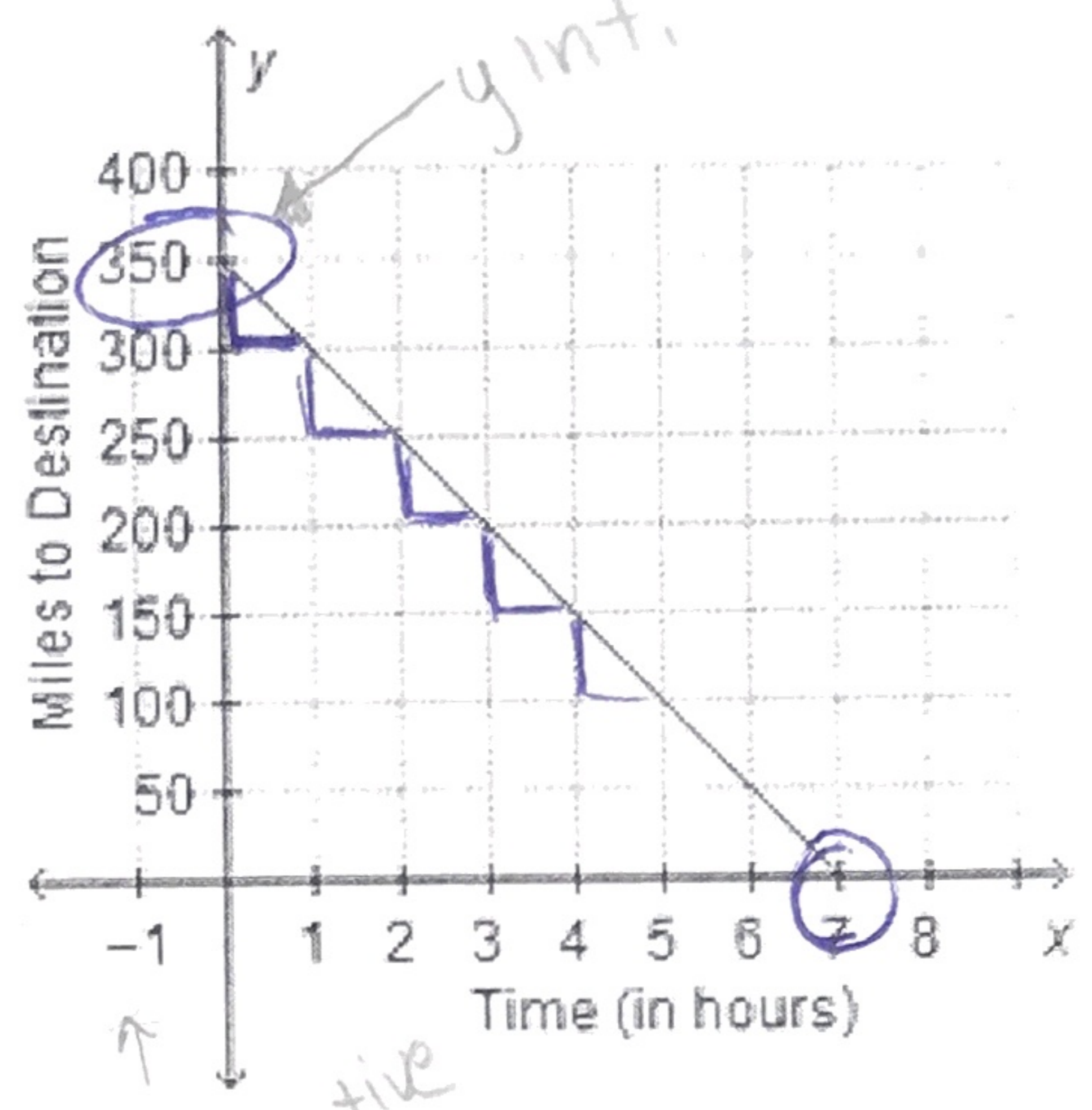


Unit 3b Day 9: Parts of a Linear function

Focus Question: How can I identify the parts of a function?

Kelsey's Vacation Trip

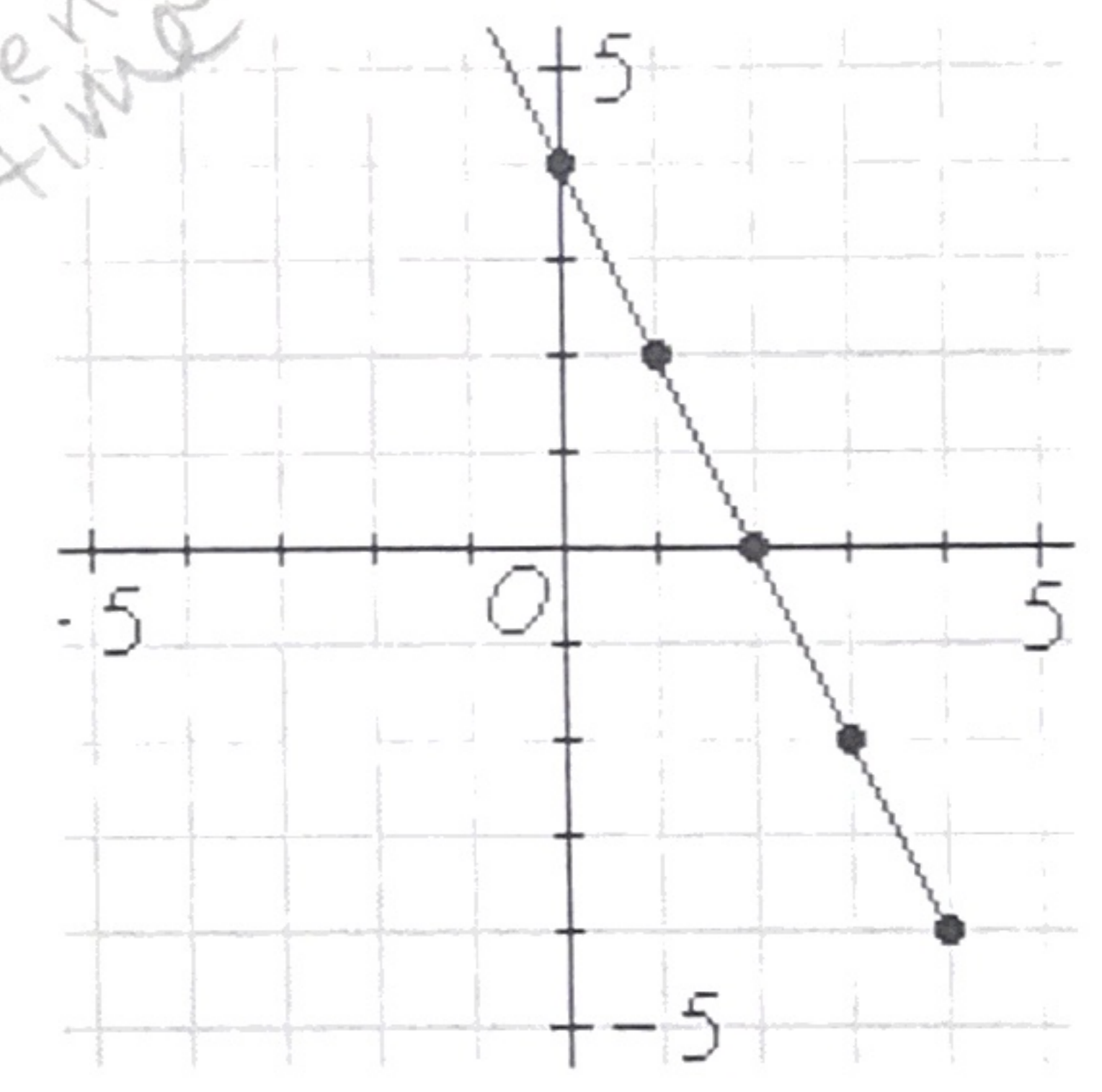


- A. What are some things you can tell based on the graph at the right?
- * Linear Function (straight line)
 - * Driving 50 miles per hour (slope)
 - * The distance is decreasing (negative slope)
 - * The trip took 7 hours (meets the x axis at 7)
 - * Destination was 350 miles away (line starts on y axis at 350)

B. Parts of the graph help us understand "the story."

In addition to slope, mathematicians use the words y-intercept and x-intercept when they discuss a graph. On the graph at the right, label what you think those two words refer to.

you can have negative time

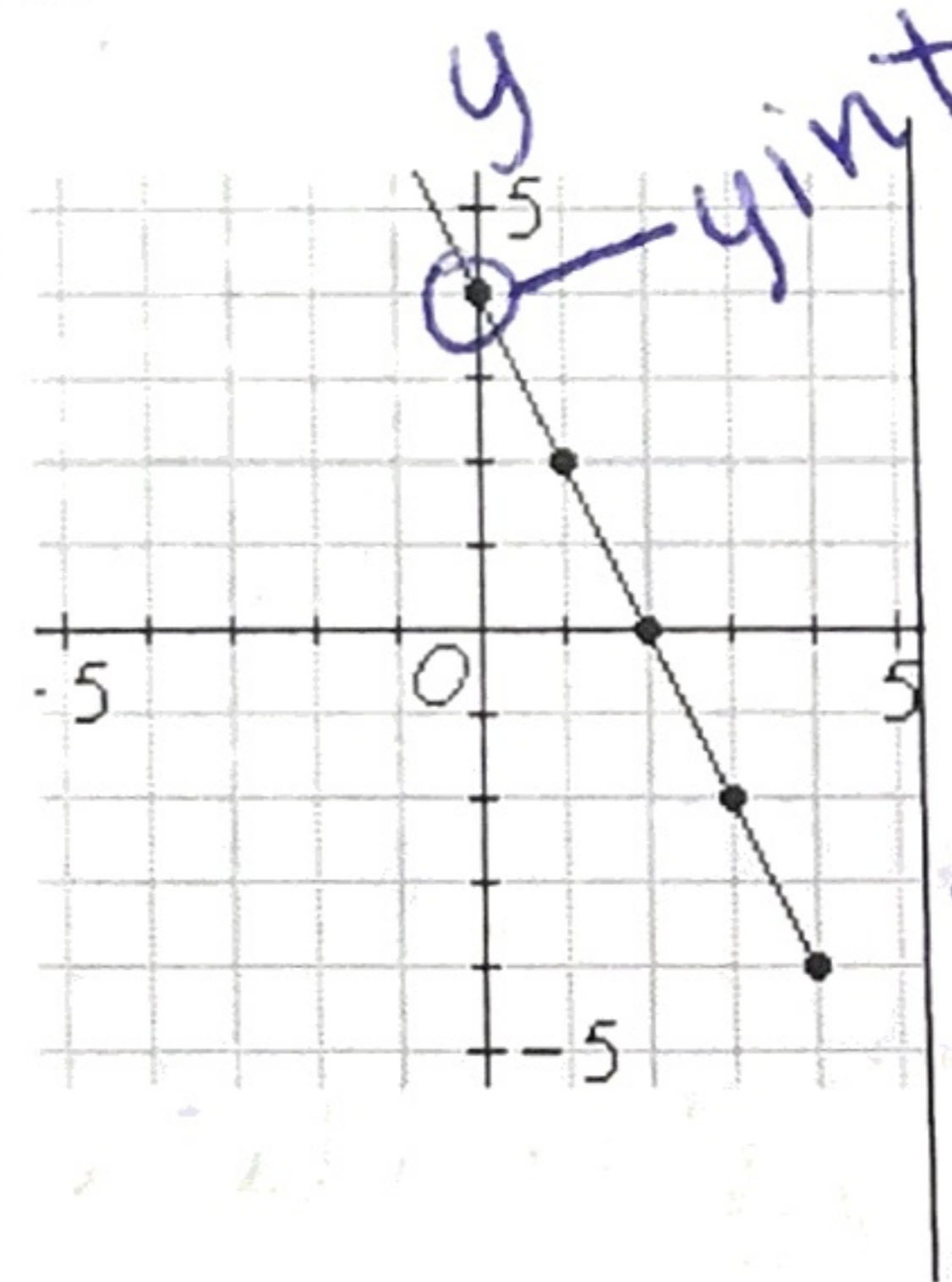


The correct answers are:

y - intercept: (0, 4)

Definition:

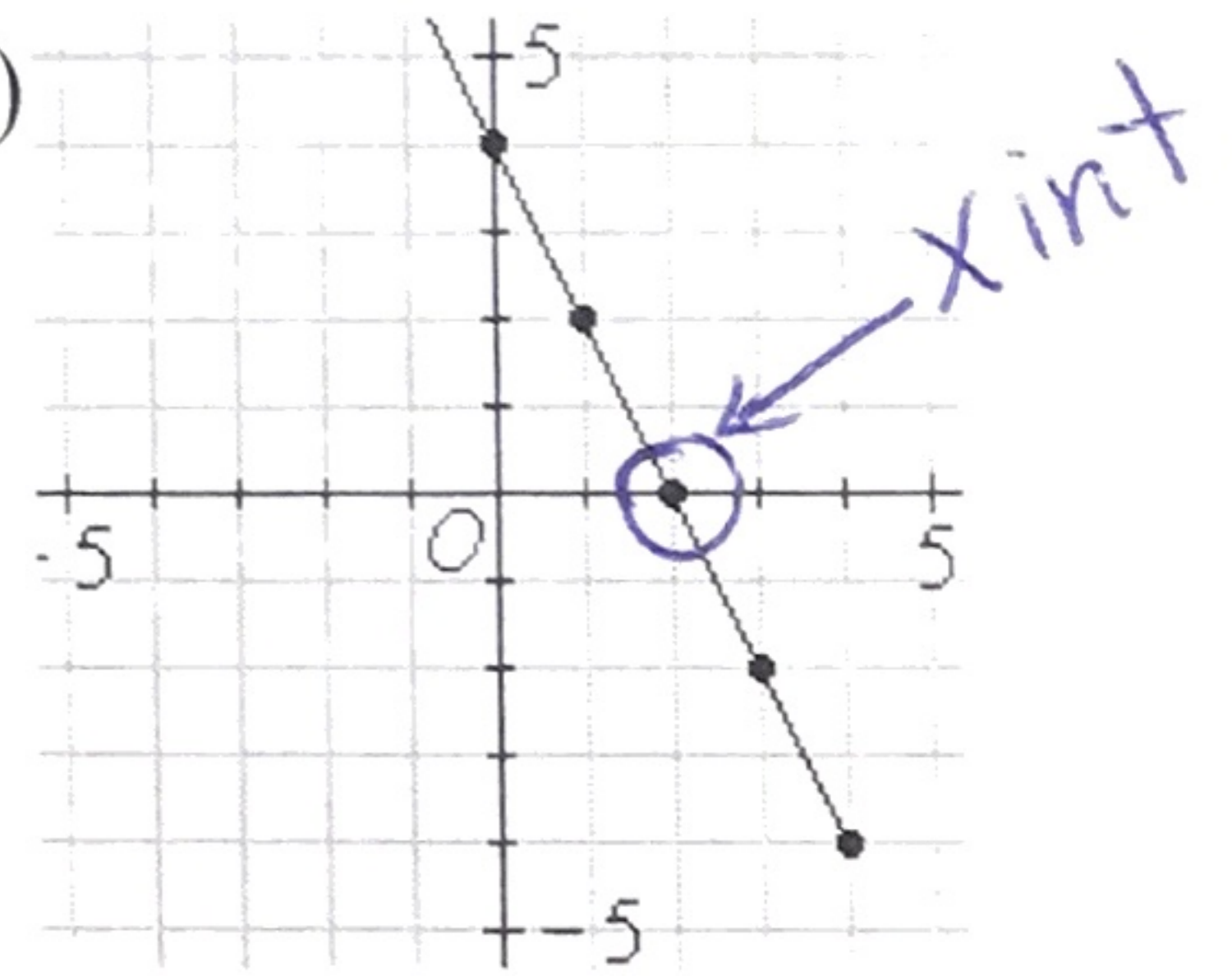
The point that the y-axis & the function share.



x - intercept: (2, 0)

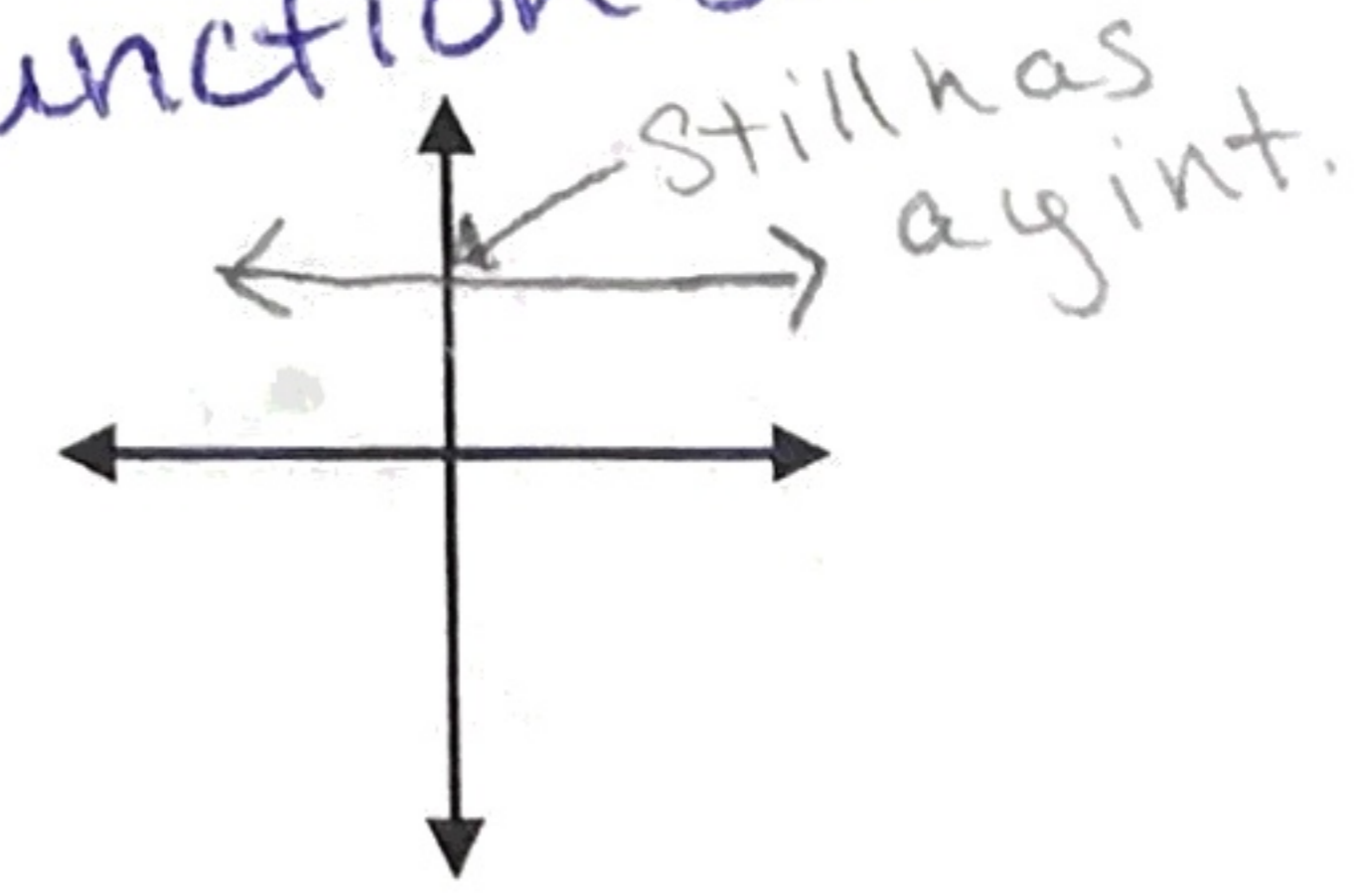
Definition:

The point that the x-axis & the function share



Not all linear functions have an x-intercept.

Can you sketch one that does not?

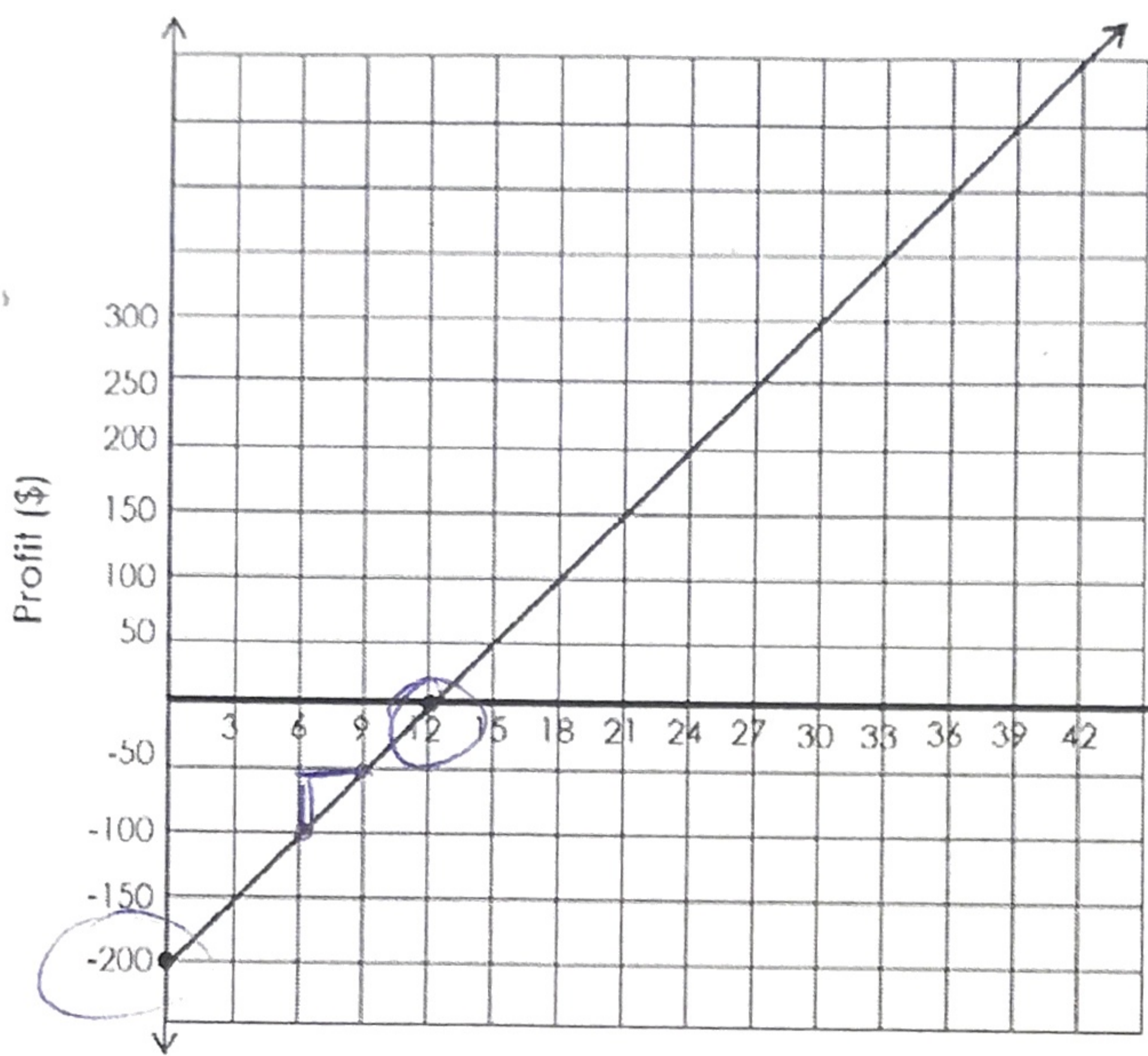


For this reason, when dealing with LINEAR functions (equations for lines), it is the y intercept that is more important. In math, the letter that stands for y intercept is b. Why is b an appropriate letter for the y intercept?

its for the beginning on the y axis in real life situations

C. Telling the graph's story

Adrienne is a stylist at a new age hair salon. She pays a monthly fee to rent a station at the salon. The graph below represents her profits each month based on the number of haircuts she does.



1. What are the coordinates of the y-intercept?

$(0, -200)$

2. What do the coordinates of the y-intercept represent?

She had to rent the station for \$200.

3. What are the coordinates of the x-intercept?

$(12, 0)$

4. What do the coordinates of the x intercept represent?

At 12 haircuts she "breaks even."

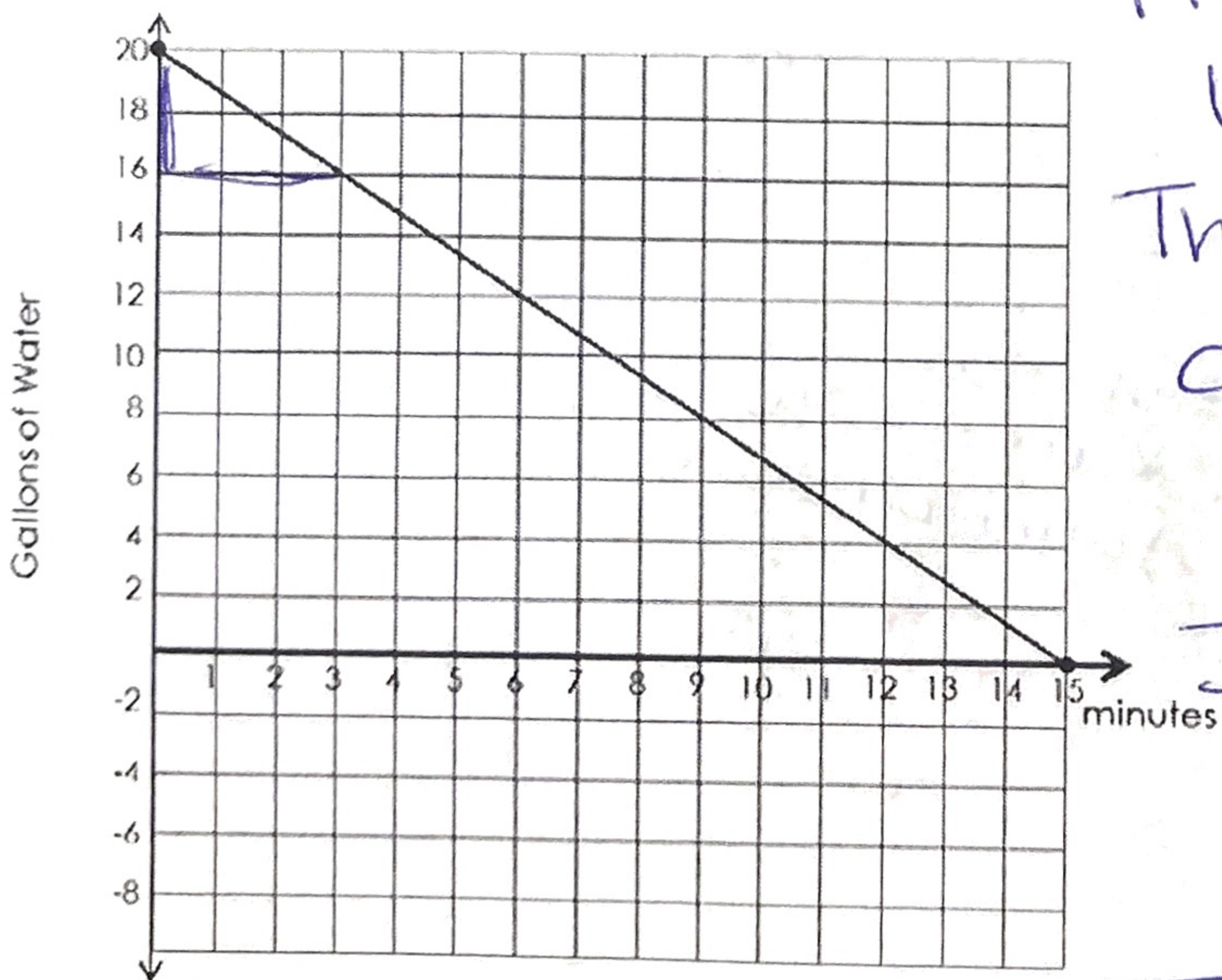
5. What is the slope of the line? What does it represent?

$\frac{50}{3}$ She makes \$50 for every 3 haircuts.

6. What is the "story" the graph tells?

Adrienne pays \$200 to rent a station. She gets \$50 every 3 haircuts. After 12 haircuts she will start to make a profit

7. Billy Bob thinks he has a clogged pipe. Use the graph and all of your vocabulary to explain why he believes this to be the case.



First he filled his bathtub with 20 gallons (y-int).

The water decreases or drains 4 gallons every 3 minutes (slope).

It takes 15 minutes to drain completely (x int.)

That's pretty slow so Billy Bob is right.