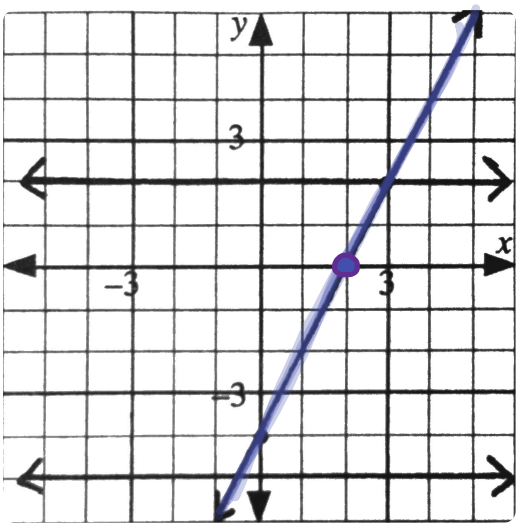
Before we begin our math question from the book in this journal, we will take a look at why it is that when we try to find an x intercept, we set y to 0. This is because when the line is passing through the x axis the coordinate where the it intercepts on the graph will be (x,0).



For example here, When the line is passing through the x-axis, y is equal to 0 so the coordinate is (2,0)

Now to begin with our math question for this journal! This question is from page 605, and it is question 8. It is a part of Equations of Linear Relations Lesson #7: Slope as a Rate of Change. Here is the question:

After 7 days of heavy rainstorms, the water level in a river peaked at 2.85m above the regular level. Four days later the water dropped to 2.25m above the regular level.
a)Assuming the water level falls at a constant rate, determine a function h(t) which describes the height of the river above regular level as a function of time. Take t=0 at water peak level
b)State the slope of the graph of the function, and explain what it represents
c)Determine an appropriate domain and range for h

So first we have to figure out an equation for the function of h(t) using the information we have (a). Then we have to explain what the slope represents (b).

First we must determine the difference between the peek 2.85m and the lowering after 4 days, 2.25m.

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 2.85
-2.25
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 0.60
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Then we must divide it by 4 because we currently have this rate: 0.60m/4days but we need it per day

0.60/4=0.15

We know that it's a decreasing rate so when we put our answer in the equation we have to add a negative sign, also since at the peak t=0 we have to add +2.85 in our equation.
h(t)=-0.15t+2.85

Now that we have our equation, we have our slope! Our slope is −0.15 and we can figure this out by looking at the equation (it goes down by 0.15 at each point). Also we know that it's the water level going down so the answer is...

Our slope is −0.15 and it represents the rate at which the water level changes.

Now for the domain and range:

D: $0 \leq h \leq 19$ hER
R: $0 \leq h(t) \leq 2.85$ h(t)ER

And now we're done! Thank you for reading my math journals!