

**Daily Agenda**

Learning Target: I can use linear equations to model real life situations.

<p><b>Homework</b></p> <p>Mathography Who I Am Parent Homework 1.3 Homework</p>	<p><b>Assessments</b></p> <p>Mini Quiz 9/2 Unit 1 Test on 9/11</p>
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I believe that every person is born with talent.  
-Maya Angelou

Nov 15-8:24 PM

**Real World Applications**

1. Assume a ~~kind of~~ function (linear, quadratic, etc.). Find ordered pairs ~~and~~ select an appropriate domain.
2. Find the ~~particular~~ equation fitting the ~~known~~ points.
3. Given values of x, find y.
4. Given values of y, find x. Use the answers to make interpretations ~~about the real world~~ (slope, intercepts, etc.)

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**Bathtub Problem**

You pull out the plug from your bathtub. After 40 seconds, there are 13 gallons of water left in the tub. One minute after you pull the plug, there are 10 gallons left. Assume that the number of gallons varies linearly with time since the plug was pulled. "y varies with x"

$x = \text{time}$   
 $y = \text{gallons left}$

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(a) Write the particular equation expressing number of gallons left in the tub in terms of number of seconds since you pulled the plug. (y in terms of x)

$$m = \frac{13-10}{40-60} = \frac{-3}{20}$$

$$y - 13 = \frac{-3}{20}(x - 40)$$

$$y - 13 = \frac{-3}{20}x + 6$$

$$y = \frac{-3}{20}x + 19$$

(b) How many gallons would be left after

- i. 20 seconds? 16 gallons
- ii. 50 seconds? 11.5 gallons

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(c) Find the gallons intercept. What does this number represent in the real world?

19 gallons  
how many gallons when tub is full (before pulling plug)

(d) Find the time intercept. What does this number represent in the real world?

how long it takes to drain the tub

$$0 = \frac{-3}{20}x + 19$$

$$x = 126.67 \text{ seconds}$$

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(e) Plot the graph of this linear function. Use a suitable domain.

(f) What are the units of the slope? What does this represent in the real world?

$\frac{-3}{20}$  gallons/sec.

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