

Real Life Slope Intercept form. (NOTES AND EXAMPLES)

$$Y = MX + B$$

M represents the slope of the line (Also known as the RATE OF CHANGE)

B represents the y-intercept of the line (where it crosses the y-axis so x is 0)

X represents a x part of a coordinate on the line

Y represents a y part of a coordinate on the line.

Whenever given a real life scenario make sure you can explain the meaning of each variable, constant, and coefficient in context of the problem.

Scenario 1.

Ray plans to purchase a phone plan that charges .01 per text sent and a flat \$20 fee each month. Write the equation in slope intercept form that represents the monthly bill.

Equation is $y = .01x + 20$

- .01 is the slope (M) and represents cost per text
- X represents the number of text sent
- \$20 represents the one time monthly fee
- Y represents the total bill based on text sent (y depends on x)

Scenario 2.

Alexis plays girls basketball and wants to raise money to purchase a new pair of the Under Armour lockdown for basketball black and red shoes. The cost of the shoes are \$80, which includes shipping and handling as well as all taxes. Alexis asked her mom if she could bake, and sell cakes so that she can raise the money to purchase the shoes. Alexis's mom agreed to pay for the baking supplies, which is \$40. Alexis plans to sell the cakes for \$20 each. Write an equation in slope intercept form that represents the profit that Alexis will make before the shoes have been purchased but after paying her mom back for the baking supplies.

Equation is $y = 20x - 40$

- 20 is the slope (M) and represent the cost per cake sold
- X represents the # of cakes sold

- -40 represents the cost (contribution) of the baking supplies
- Y represents the profit Alexis makes based on the number of cakes sold (y depends on x)

Continuing with scenario #2.

Given the point (0,-40) What does this mean in the context of this problem? What math term is this point?

Given the equation $80 = 20x - 10$ to model the situation, solve the problem and discuss what the answer tells you. (You may solve by hand or look at the intersection of the two lines to interpret the meaning.)

What does the point (2, 0) tell us about this scenario? What famous math term is this point?

Complete the following table below for the function $P(x) = 20x - 10$, where x represents cakes sold, and p(x) represents profit based on the number of cakes sold.

Cakes sold (x)	Profit p(x)
8	
10	
14	
20	

Use any 2 points from the above table and find the slope of the line containing the two points (USE YOUR CALCULATOR STAT/EDIT)

Use a different combination of 2 points and find the slope of the line containing those two points. (USE YOUR CALCULATOR STAT/EDIT.)

What did you notice about the slopes of the two different sets of points? Why is this true?

