

Activity Two: Investigating Slope and Y-Intercept in the Real World

Directions: Use what you have learned about the concepts of slope and y-intercept to solve:

A. A Day at the Fair

You and your friends plan to attend the annual county fair this weekend. The entry fee for the carnival is \$5.00 and the cost per ticket is \$0.50.

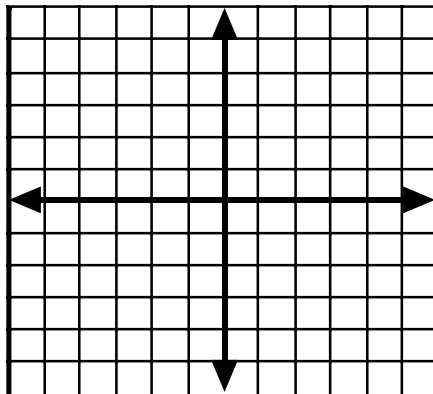
Number of Tickets	Cost
8	\$9.00
12	\$11.00
	\$12.50
23	

1. Complete the above table.
2. Write a linear equation in which y represents the total cost and x represents the number of rides selected.
3. Identify the slope and y-intercept in the equation and explain what each of them represents in the context of the problem.

slope (m) =

y-intercept (b) =

- 4.) Sketch the graph of the linear equation.



5. Your parents have decided to give you \$20.00 to spend at the fair. If you need three tickets for each ride, how many rides will you be able to go on? Use mathematics to explain your answer. Use words, symbols, or both.

B. Canoe Caper

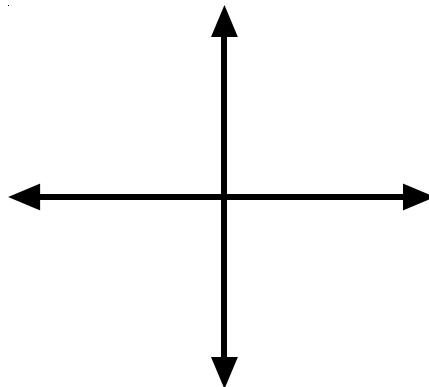
While your family is visiting Deep Creek Lake, you and your brother decide to go boating. The park rangers require a \$25.00 deposit to rent a canoe and a rental fee of \$6.50 per hour.

1. Write a linear equation in which y represents the total cost of renting a canoe and x represents the number of hours spent on the canoe. _____
2. Identify the slope and y -intercept in the equation and explain what each of them represents within the context of the problem.

slope (m) =

y -intercept (b) =

3. Using your TI-83, graph the linear equation. Sketch it below.



4. Using the trace or table function on the TI-83, find the cost of renting a canoe from 12:30 to 3:30 PM provided that the canoe is returned in the same condition in which you received it.

Cost:

Use mathematics to explain how you got your answer. Use words, symbols, or both.

C. Sweet Sixteen

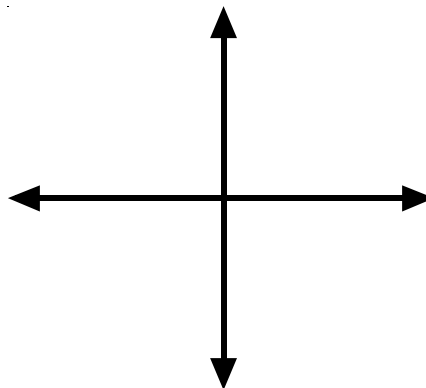
Your parents have decided to buy a new Toyota 4Runner for \$25,635 and they have promised that the SUV will be yours when the car is worth \$10,000. According to the car dealer, your parents' SUV will depreciate in value approximately \$3,000 per year.

1. Write a linear equation in which y represents the total value of the car and x represents the age of the car.
2. Identify the slope and y -intercept in the equation and explain what each of them represents within the context of the problem.

$m =$

$b =$

3. Using your TI-83, graph the linear equation. Sketch the line below.



4. a. Based on the information above, will the Toyota 4Runner be yours on your sixteenth birthday?
- b. If not, how old you will be when the SUV is finally yours?
- c. Explain your answer by using mathematics. Use words, symbols, or both.

D. Can We Talk?

You have just signed an annual contract with Verizon for a cellular phone. The base rate is \$32 per month for 200 minutes and \$0.14 per minute for all additional minutes.

1. Write a system of linear equations in which y represents the total cost for the cell phone per month and x represents the number of minutes spent on the phone each month.

First 200 minutes:

More than 200 minutes:

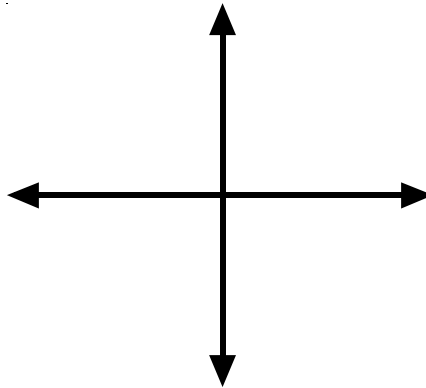
2. Identify the slope and y -intercept in the linear equation which represents the cost of the cellular phone when using more than 200 minutes in a given month. Then, explain what the slope and y -intercept represent within the context of the problem.

$m =$

$b =$

3. Examine the linear equation which represents the cost of the cellular phone when using fewer than 200 minutes. Why is this linear equation different from the other equation? Justify your answer by using mathematics. Use words, symbols or both.

4. Graph the two linear equations in your TI-83 and sketch the results on the coordinate grid.



5. Your cell phone bill for last month was \$629.40 and you know that this cost is much too high. If you talked on your cellular phone for 221 minutes last month, how much do you believe your bill should have been? Explain your answer using mathematics. Use words, symbols, or both.
