

TEST 2

Applying Rates and Proportions

- 1) You're shopping for a new cell phone and want to get the best deal. Verizon has a plan that gives 500 minutes for \$40 per month. Alltel has a plan that gives 700 minutes for \$60 per month.
 - a) Which of the plans presents the better deal? Verizon or Alltel? How do you know?

 - b) Assuming that Verizon charges this same rate even if you go over the minutes, how much money should it cost for 600 minutes

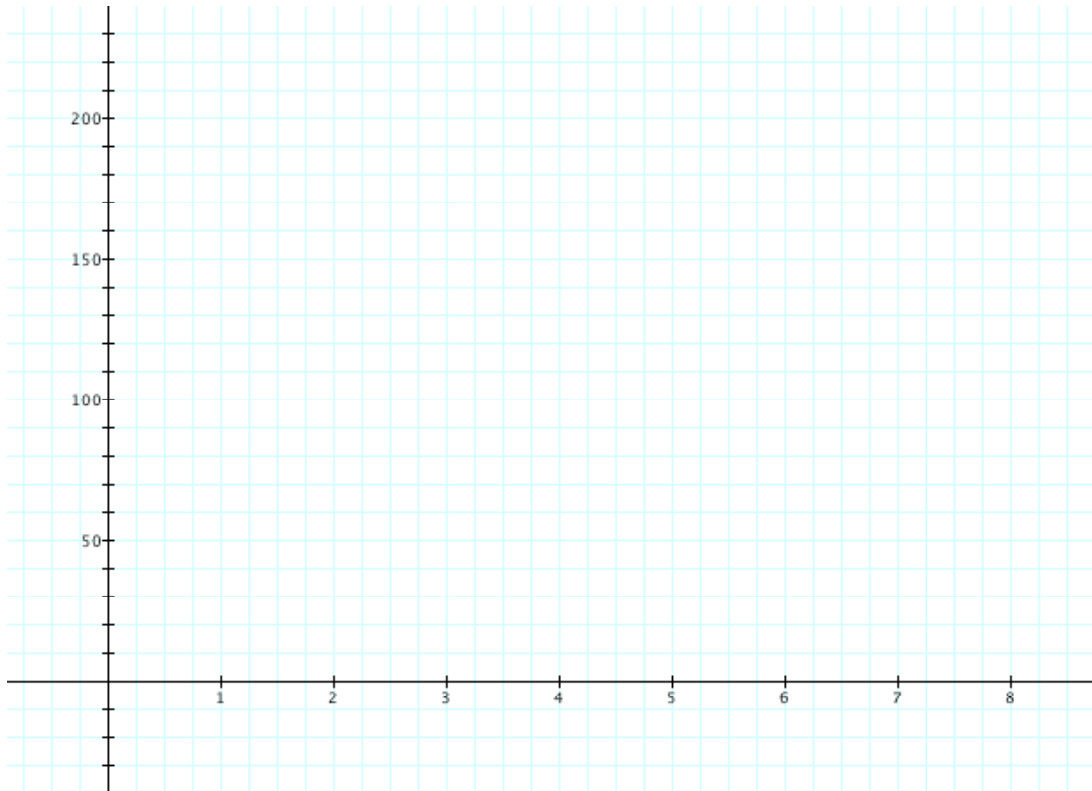
 - c) Assuming Alltel charges the same rate, how many minutes should you get if you prepay \$80?

 - d) Write an expression that represents the cost of the Verizon plan for x minutes

 - e) If on one particular month Sarah used 450 minutes and paid \$36 for them, which plan did she have?

2) You bought a new map, but it doesn't have a scale!!! How are you supposed to use a map without a scale? So, being the bright individual that you are... you grab a ruler and see how many inches it is from one city to the next, then you hop in your car to see how many miles corresponds with that number of inches. You choose two towns that are 4 inches apart. When you drive the trip it turns out to be 60 miles.

- a) Using your research, what is the scale ratio for this map?
- b) Assuming your scale ratio is correct, how many miles on land are represented by 12 inches on the map?
- c) Sketch a graph that shows the relationship between number of inches on the map and number of miles on land. Graph inches on the horizontal axis and miles on the vertical axis



- d) Use the graph from part c to estimate how many inches the map would show for a 160 mile trip.
- e) If you drive at a rate of 50 miles per hour, how long will it take you to make the 160 mile trip?

3) You decide to open your own candy business. You need to buy candy wrapping machines to save on labor. The kind you are thinking of buying can wrap 110 candies in 2 minutes.

a) How many machines of this kind will you need to buy so that you can wrap 5500 candies in 20 minutes?

b) Explain (in words...) how you thought about the question in part a in order to come to an answer. Describe it as if you were trying to “teach” me how to think about it... ☺

4) Here is an equation:

$$\frac{10}{4} = \frac{15}{x}$$

a) Make up a word problem about maps for which this equation would be an answer.

b) What value of x will be a solution to this equation?