

Name _____

Math # _____

For each question, fill in the blanks and draw the graphs on grid paper.

1. On a monthly payment basis, a cellular phone company offers a number of price plans. The first two are as follows:

Price Plan 1: \$13 monthly charge plus 36¢ per minute.

Price Plan 2: \$18 monthly charge with 100 free minutes and thereafter 18¢ per minute.

Use a horizontal scale: x-axis - (time in minutes) from 0 to 260 minutes

Use a vertical scale: y-axis - (cost in \$) from 0 to \$80.

- a. Start with these points:

Price Plan 1. When $t = 0$, cost = _____ (remember monthly charge!)

When $t = 50$, cost = _____

- b. Draw a straight line between these two points.

Price Plan 2. When $t = 0$, cost = _____

When $t = 50$, cost is still the same (remember 100 minutes free!)

- c. Draw the straight line.

- d. Find the point where these two lines cross. What is the importance of this point?

- e. What would your advice be to someone who used the phone for 10 minutes a month?

- f. What would your advice be to someone who used the phone for 30 minutes a month?

2. The same company offers 3 business price plans.

Business Plan 1: \$18 a month payment, 100 minutes free, thereafter 18¢ per minute.

Business Plan 2: \$25 a month payment, 200 minutes free, thereafter 18¢ per minute.

Business Plan 3: \$40 a month payment, 400 minutes free, thereafter 18¢ per minute.

Use horizontal axis: x-axis - (time in minutes) 0 to 700 minutes.

Use vertical axis: y-axis - (cost in \$) 0 to \$130.

- a. Plot the graphs of A, B and C all on the same graph. (Label each one carefully.)
- b. Use the graph to answer the following questions:
 - a. If a business expects to use a cellular phone for 100 minutes each month which plan would you recommend?
 - b. If usage is 200 hours a month, would you choose A, B or C? Why?
 - c. At what point does scheme C become the cheapest to use?
 - d. What do you notice about the three sloping lines?
 - e. Why is this?