Algebra 1

Chapter 5: Linear Sentences

**5.2: Solving Linear Systems by Graphing**

**Talk Is Cheap!**

Below is information regarding two pre-paid cellular phone plans. Discuss and decide together as a group which plan is the better deal for a cell phone user.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Carrier |  | Rate Per Min |  | Monthly Fee |
| **Verizon** |  | 10 cents |  | $30 |
| **TracFone** |  | 20 cents |  | $0 |

1. Discuss in your groups the following, “Which plan seems to be the better deal?” It is ok to disagree with one another; however, be respectful and support your decisions with evidence.

2. In your groups, discuss and decide on equations that represent the cost of a monthly telephone bill for each carrier.

Verizon: TracFone:

3. Find the monthly bill for each carrier if a caller talks for 100 minutes. For 500 minutes.

4. How many minutes worth of calls could you make in one month for $55 under the pricing plans of the two carriers?

5. Summarize your findings from questions 3 and 4.

1. On your calculator, graph the two equations from question 2 on one graph. Put the equation for the Verizon plan in Y1 and the equation for the TracFone plan in Y2. Sketch the graph below using a heavy line for Verizon and a regular line for TracFone. Also, use the following window:



xmin = 0

xmax = 400

xscl = 10

ymin = 0

ymax = 70

yscl = 10

7. Describe relationships you see in the graphs. Be as specific as possible.

8. What do the x-values of the graphs represent? What about the y-values?

9. Look at the table of these two functions. Describe any patterns or relationships in the cost(s) of each plan. Be as specific as possible.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Minutes (x)** | | **Verizon (y1)** | | **TracFone (y2)** | |
| 295 | | 59.5 | | 59 | |
| 296 | | 59.6 | | 59.2 | |
| 297 | | 59.7 | | 59.4 | |
| 298 | | 59.8 | | 59.6 | |
| 299 | | 59.9 | | 59.8 | |
| 300 | | 60 | | 60 | |
| 301 | | 60.1 | | 60.2 | |
| 302 | | 60.2 | | 60.4 | |
| **Minutes (x)** | | **Verizon (y1)** | | **TracFone (y2)** | |
| 303 | | 60.3 | | 60.6 | |
| 304 | | 60.4 | | 60.8 | |
| 305 | | 60.5 | | 61 | |
| 306 | | 60.6 | | 61.2 | |
| 307 | | 60.7 | | 61.4 | |
| 308 | | 60.8 | | 61.6 | |
| 309 | | 60.9 | | 61.8 | |
| 310 | | 61 | | 62 | |

10. Use the trace function with the graph and the table above to decide:

(Be sure to describe how these results are shown in the table and the graphs.)

i. When Verizon is a better deal than TracFone;

ii. When TracFone is a better deal than Verizon;

iii. When Verizon and TracFone have the same monthly bill.

11. Use all of the evidence from this lesson to determine which cellular phone plan would be best for you. Be sure to support your decision with evidence.