**S**

andi recently signed up for long distance telephone service from Phones-R-Us. Phones-R-Us charges $4.00 per month flat rate, plus $.10 per minute of long distance calling. What would the algebraic equation (or **formula**) for this situation be? (Use *m* to represent the number of monthly minutes of calls and *c* to represent the monthly charge in dollars.)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

In your equation, what represents the **fixed cost**? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

In your equation, what represents the **variable cost**? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Complete the following table to determine the charges that Sandi would pay for various minutes of long distance calling by substituting the values in the table for *m* into the formula and calculating the value for *c*.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Monthly Minutes (*m*) | 0 | 2 | 8 | 14 | 20 |
| Monthly Charge (*c*) |  |  |  |  |  |

2. Graph these points below:

6

5

4

3

2

1

0

0 2 4 6 8 10 12 14 16 18 20

Monthly Minutes (*m*)

Monthly Charge in Dollars (*c*)

3. Connect the points you graphed above. You have just graphed a **linear****formula**. It is called *linear* because the graph forms a straight line.

5. What is the **starting point**? (If you make zero calls, what is the cost?)

6. What does the fourth point on your graph represent?

7. Use the formula to find the cost for 25 minutes of monthly calls. Does this value make sense according to your graph?

John is starting a roofing business. He will need to buy a truck and some supplies to get his business going. The truck costs $13000 used. He gets three jobs right away. And hires 2 workers to help him. The materials for all three jobs cost $3000. The jobs will each take a week not including Saturday and Sunday and he pays his workers $125 per day per worker.

1. What are John’s **fixed costs?** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. What are John’s **variable costs?** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. What would the equation be to describe the total cost for John’s business (let *d* represent the number of days worked, and *c* represent the total cost)

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4. Complete the following table to show the cost for the first 15 days of the project.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| # Days (*d*) | 0 | 5 | 10 | 15 |
| John’s cost (*c*) |  |  |  |  |

5. What is the **starting point** of the graph (what is the first point on the y-axis)?

6. What should the increments of the y-axis be? Please fill in these values.

7. Graph the information from the above table on the grid below and draw a line through the points.

***y***

Cost (in dollars)

***x***

0 2 4 6 8 10 12 14 16 18 20

Days of work on jobs

10. How much will he have to charge for each job in order to **break****even** at the end of the third job?

11. If John received $20,000 for the first and second jobs combined, what was his profit?

***x***