

BUILDING A MORE COMPLICATED FORMULA

Each month you talk on the phone for 400 minutes, send 500 text messages, and use 4 gigabytes of data. If you currently pay \$119.99 per month, could you save money on this plan?

Save big on cell phone service for only \$39.99 per month!

Includes 300 phone minutes, 300 text messages, and 3 gigabytes of data.

Additional costs: \$0.35 for each additional minute, \$0.05 for each additional text and \$12 for each additional gigabyte.

Make a table of what you know:

Base cost	\$39.33 per month		
Included:	Minutes	Texts	Data (Gb)
	300	300	3
Additional costs per:	Minute	Text	Data (Gb)
	\$0.35	\$0.05	\$12

Write the math expression in words:

Total cost =

Base Cost + Cost of Minutes over 300 + Cost of Texts over 300 + Cost of Data over 3

Choose letters to represent the values that vary:

M = number of minutes over 300

T = number of texts over 300

D = amount of data over 3

Translate the words to math:

$$\begin{array}{ccccccc} \text{Base Cost} & + & \text{Cost of Minutes over 300} & + & \text{Cost of Texts over 300} & + & \text{Cost of Data over 3} \\ \downarrow & & \downarrow & & \downarrow & & \downarrow \\ 39.99 & + & 0.35(M) & + & 0.05(T) & + & 12(D) \end{array}$$

Figure out the values for the letters:

$$M = \text{your usage} - 300 = 400 - 300 = 100$$

$$T = \text{your usage} - 300 = 500 - 300 = 200$$

$$D = \text{your usage} - 3 = 4 - 3 = 1$$

Substitute into the formula and do the math:

$$\text{Total cost} = 39.99 + 0.35(M) + 0.05(T) + 12(D)$$

$$\text{Total cost} = 39.99 + 0.35(100) + 0.05(200) + 12(1)$$

$$\text{Total cost} = 39.99 + 35 + 10 + 12$$

$$\text{Total cost} = 96.99$$

Make sure your answer makes sense and summarize what you have found including your decision:

\$96.99 seems like a reasonable amount for a monthly cell phone charge with a base cost of \$39.99.

This is less expensive than my current plan, so I will save money if I switch!