

# Henry's Dilemma



Henry lost his cell phone and his mom is making him pay for his new phone and phone plan. (This is the 3<sup>rd</sup> phone Henry has lost!! and his phone plan has expired.) Henry has decided on the free phone, but the cell phone provider has three different monthly plans to choose from. The plans are:

Plan A: \$15.00 for unlimited calls plus \$0.10 per text

Plan B: \$6.00 for unlimited calls \$0.20 per text

Plan C: \$30 flat rate, unlimited calls, unlimited texting (coverage is limited)

Use the tables below to help you write an equation for each phone plan.

## Plan A

# texts	texts \$	+	flat rate	= total (y)
0 texts	\$0.10 (0 texts)	+	\$15	\$15
10 texts				
30 texts				
80 texts				

Equation: \_\_\_\_\_ + \_\_\_\_\_ = total (y)

## Plan B

# texts	texts \$	+	flat rate	= total (y)
0 texts	\$0.20 (0 texts)	+	\$6	\$6
10 texts				
30 texts				
80 texts				

Equation: \_\_\_\_\_ + \_\_\_\_\_ = total (y)

## Plan C

# texts	texts \$	+	flat rate	= total (y)
0 texts	\$0 (0 texts)	+	\$30	\$30
10 texts				
30 texts				
80 texts				

Equation: \_\_\_\_\_ + \_\_\_\_\_ = total (y)

Use the graph provided to graph the equations for each phone plan. Be sure to label each line.

Answer the following questions about your graph.

- 1) a) Where do Plan A and Plan B intersect? ( \_\_\_\_\_ texts, \$ \_\_\_\_\_ )  
b) What does this mean in terms of the number of texts Henry can make and how much it will cost him per month? What does the point mean about Plan A and Plan B?
  
- 2) a) Where do Plan A and Plan C intersect? ( \_\_\_\_\_ texts, \$ \_\_\_\_\_ )  
b) What does this mean in terms of the number of texts Henry can make and how much it will cost him per month? What does the point mean about Plan A and Plan 2?
  
- 3) a) Where do Plan B and Plan C intersect? ( \_\_\_\_\_ texts, \$ \_\_\_\_\_ )  
b) What does this mean in terms of the number of texts Henry can make and how much it will cost him per month? What does the point mean about Plan B and Plan C?

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Write the equations for each of the phone plans below.

**Plan A**

**Plan B**

**Plan C**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Using the method of substitution, solve each system. Number 4 has been started for you.

- 4) Plan A and Plan B; The solution by substitution is: ( \_\_\_\_\_, \_\_\_\_\_ )

$$y = 0.1x + 15; y = 0.2x + 6$$

$$\begin{array}{r} 0.2x + 6 = 0.1x + 15 \\ -0.1x \quad -0.1x \\ \hline \end{array}$$

$$0.1x + 6 = 15$$

5) Plan A and Plan C; The solution by substitution is: ( \_\_\_\_\_, \_\_\_\_\_ )  
equations:

6) Plan B and Plan C; The solution by substitution is: ( \_\_\_\_\_, \_\_\_\_\_ )  
equations:

7) Do the answers you found using the graph match those that you found using substitution? Explain.

8) Which method do you find easier to use, graphing or substitution? Explain.