

From Hw (Solving Systems)

1. ① $4x + 3y = 1$

② $x = 1 - y$

Sub $y = 3$ into ②

$$x = 1 - 3$$

$$\boxed{x = -2}$$

using substitution:

$$4(1-y) + 3y = 1$$

$$4 - 4y + 3y = 1$$

$$4 - y = 1$$

$$-y = 1 - 4$$

$$-y = -3$$

$$\boxed{y = 3}$$

17. ① $5x - 8y = 25$

② $(-x + 4y = -7)$

$$\rightarrow \begin{array}{r} 5x - 8y = 25 \\ -2x + 8y = -14 \\ \hline 3x = 11 \end{array}$$

$$3x = 11$$

$$\boxed{x = \frac{11}{3}}$$

Sub $x = \frac{11}{3}$ into ①:

$$5\left(\frac{11}{3}\right) - 8y = 25$$

$$\frac{55}{3} - 8y = \frac{75}{3}$$

$$-8y = \frac{75}{3} - \frac{55}{3}$$

$$-8y = \frac{20}{3}$$

$$y = \frac{20}{3(-8)}$$

$$y = \frac{20}{-24}$$

$$\boxed{y = -\frac{5}{6}}$$

Conditional Solutions

Example: Terry wants to add a text messaging plan to her cell phone package. The company she deals with has 3 different plans to choose from:

<u>Plan</u>	<u>Monthly Fee</u>	<u>Charge per message</u>
A	\$10	7¢
B	none	15¢
C	\$15	5¢

- ① Write an equation for each plan. Be sure that you identify the variables.

let x be the # of messages
 y be the total cost in dollars

PLAN A: $y = 0.07x + 10$

PLAN B: $y = 0.15x$

PLAN C: $y = 0.05x + 15$

- ② Determine when the various plans have the same cost.

A and B
 $0.07x + 10 = 0.15x$
 $10 = 0.08x$
 $x = 125$

Plans A and B cost the same for 125 messages

B and C
 $0.15x = 0.05x + 15$
 $0.10x = 15$
 $x = \frac{15}{0.10}$
 $x = 150$

Plans B and C will cost the same for 150 mess.

A and C
 $0.07x + 10 = 0.05x + 15$
 $0.02x = 5$
 $x = \frac{5}{0.02}$
 $x = 250$

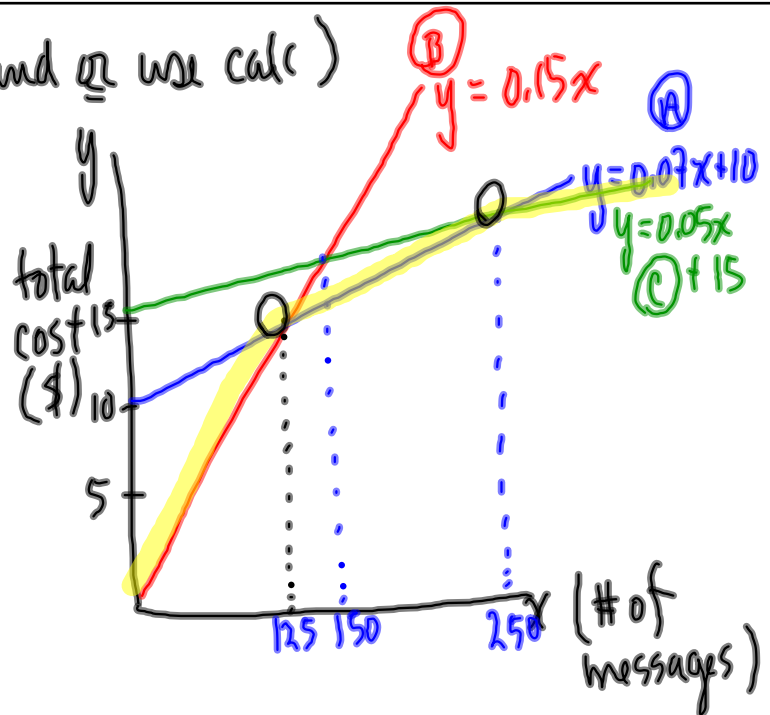
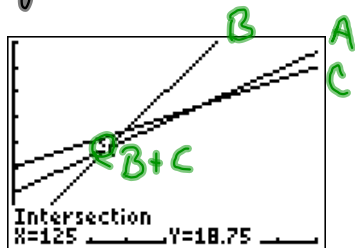
A and C will cost the same for 250 mess.

③ Graph (Sketch by hand or use calc)

Ⓐ $y = 0.07x + 10$

Ⓑ $y = 0.15x$

Ⓒ $y = 0.05x + 15$



④ Plan B is best for less than 125 messages

Plan A is best for 125 to 250 messages

Plan C is best for more than 250 messages.