

1. Solve the following system of equations, using the Elimination (Addition) Technique:

$$\begin{array}{l} \textcircled{1} \begin{cases} a+b+2c=1 \\ -a+2b-c=5 \\ 2a+3b-c=4 \end{cases} \end{array}$$

Elim a from ① and ②

$$\begin{array}{r} a+b+2c=1 \\ -a+2b-c=5 \\ \hline (4) \quad 3b+c=6 \end{array}$$

Elim a from ② and ③

$$\begin{array}{r} -2a+4b-2c=10 \\ 2a+3b-c=4 \\ \hline (5) \quad 7b-3c=14 \end{array}$$

Elim c from ④ and ⑤

$$\begin{array}{r} 9b+3c=18 \\ 7b-3c=14 \\ \hline 16b=32 \end{array}$$

$$a+(2)+2(0)=1$$

$$\boxed{a=-1}$$

$$\boxed{b=2} \Rightarrow 3(2)+c=6$$

$$\boxed{c=0}$$

2. a) Solve the following system of equations using either Elimination or Substitution. Clearly state your answer!

$$3 \begin{cases} x+3y=-5 \\ -3x-9y=15 \end{cases} \rightarrow \begin{array}{r} 3x+9y=-15 \\ -3x-9y=15 \\ \hline 0=0 \end{array}$$

$0=0 \Rightarrow$ Dependent system
Infinite Solutions!

Solution: $\{(x,y) \mid x+3y=-5\}$

b) IF you were to graph this system, describe what you would see (you do NOT have to actually graph!).

The same line graphed twice.

3. Graph the solution to the system of inequalities:

$$\begin{cases} x-2y \geq 3 \\ 5x+y > 5 \end{cases}$$

① $x-2y=3$

$$\begin{array}{r|l} x & y \\ \hline 0 & -3/2 \\ 3 & 0 \end{array}$$

② choose ✓

③ Test (0,0):
 $0-2(0) \geq 3?$
False!

① $5x+y=5$

$$\begin{array}{r|l} x & y \\ \hline 0 & 5 \\ 1 & 0 \end{array}$$

② choose ✓

③ Test (0,0):
 $5(0)+0 > 5$
 $0 > 5$
False!

Graph for #3

