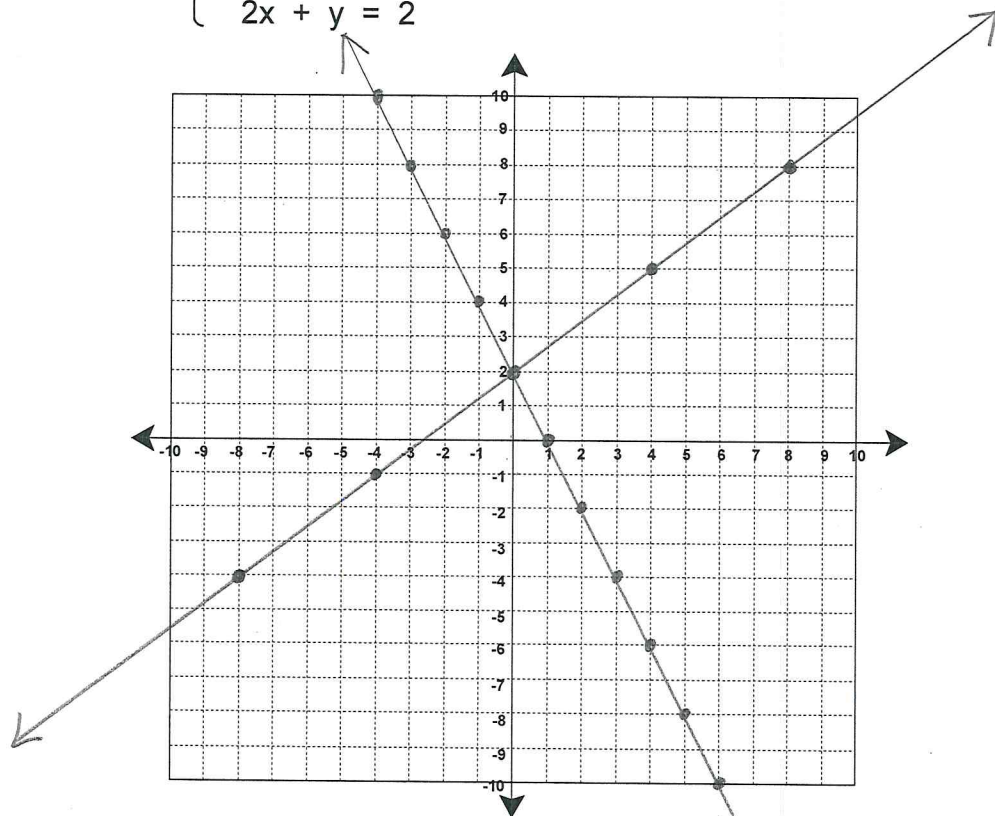


NAME: Key

Assessment Training Practice #4C

Solution:
(0, 2)

- $$\begin{cases} 3x - 4y = -8 \\ 2x + y = 2 \end{cases}$$



$$\begin{array}{r} 3x - 4y = -8 \\ -3x = -3x \hline -4y = -3x - 8 \\ \div -4 \\ = \frac{3}{4}x + 2 \end{array}$$

$$\downarrow \begin{array}{r} 2x + y = 2 \\ -2x \qquad -2x \\ \hline y = -2x + 2 \end{array}$$

2.) Solve the linear system using substitution. Check the solution by Boolean checking.

$$\begin{cases} 4x - 2y = 8 \\ x + 2y = 6 \end{cases}$$

$$\begin{array}{r} x + 2y = 6 \\ -2y \quad -2y \\ \hline x = -2y + 6 \end{array}$$

(2.8, 1.6)
Solution

$$\begin{array}{r} x + 2(1.6) = 6 \\ x + 3.2 = 6 \\ -3.2 \quad -3.2 \\ \hline x = 2.8 \end{array}$$

$$\begin{array}{r} 4(-2y + 6) - 2y = 8 \\ -8y + 24 - 2y = 8 \\ -10y + 24 = 8 \\ -24 \quad -24 \\ \hline -10y = -16 \\ -10 \quad -10 \\ \hline y = 1.6 \end{array}$$

3.) Solve the linear system using the elimination method.

(4, 0)
Solution

$$\begin{cases} 2x - 9y = 8 \\ -5x + 8y = -20 \end{cases}$$

$$\begin{array}{r} 2x - 9y = 8 \\ 2x - 9(0) = 8 \\ 2x = 8 \\ \frac{2x}{2} = \frac{8}{2} \\ x = 4 \end{array}$$

$$\begin{array}{r} 5(2x - 9y = 8) \\ 2(-5x + 8y = -20) \\ \hline 10x - 45y = 40 \\ + \quad -10x + 16y = -40 \\ \hline -29y = 0 \\ -29 \quad -29 \\ \hline y = 0 \end{array}$$

Solve each system of equations.

Solution
(2, 10)

4.)

$$\begin{cases} y = 3x + 4 \\ y = -5x + 20 \end{cases}$$

$$\begin{array}{r} 3x + 4 = -5x + 20 \\ + 5x \qquad + 5x \end{array}$$

$$\begin{array}{r} 8x + 4 = 20 \\ -4 \qquad -4 \end{array}$$

$$\frac{8x}{8} = \frac{16}{8}$$

$$x = 2$$

$$\begin{aligned} y &= 3x + 4 \\ y &= 3(2) + 4 \\ y &= 10 \end{aligned}$$

5.) Solution
($\frac{4}{3}$, 2)

$$\begin{cases} 3x + 2y = 8 \\ -6x + y = -6 \end{cases}$$

$$\begin{aligned} 2(3x + 2y) &= 8 \\ -6x + y &= -6 \end{aligned}$$

$$\begin{array}{r} 6x + 4y = 16 \\ + -6x + y = -6 \\ \hline 5y = 10 \\ \frac{5y}{5} = \frac{10}{5} \\ y = 2 \end{array}$$

$$\begin{aligned} 3x + 2(2) &= 8 \\ 3x + 4 &= 8 \\ -4 \qquad -4 \end{aligned}$$

$$\frac{3x}{3} = \frac{4}{3}$$

$$x = \frac{4}{3}$$

6.) Solution: $\begin{cases} 3x + y = 9 \\ 5x + 4y = 22 \end{cases}$
 $(2, 3)$

$$\begin{aligned} 5x + 4(-3x + 9) &= 22 \\ 5x + -12x + 36 &= 22 \\ -7x + 36 &= 22 \\ -36 &-36 \\ -7x &= -14 \\ \frac{-7x}{-7} &= \frac{-14}{-7} \\ x &= 2 \end{aligned}$$

$$\begin{aligned} 3x + y &= 9 \\ -3x &-3x \\ y &= -3x + 9 \end{aligned}$$

$$\begin{aligned} 3x + y &= 9 \\ 3(2) + y &= 9 \\ 6 + y &= 9 \\ -6 &-6 \\ y &= 3 \end{aligned}$$

7.) $\begin{cases} y = 2(x - 3) \\ -2x + y = -6 \end{cases}$

$$\begin{aligned} 2(x - 3) &= 2x - 6 \\ 2x - 6 &= 2x - 6 \\ -2x &-2x \end{aligned}$$

$$-6 = -6 \text{ True}$$

$$\begin{aligned} -2x + y &= -6 \\ +2x &+2x \\ y &= 2x - 6 \end{aligned}$$

All Real
 Numbers
 Coinciding Lines

8.)

$$\begin{cases} y = 3x - 4 \\ y = 3x + 2 \end{cases}$$

$$\begin{array}{r} 3x - 4 = 3x + 2 \\ -3x \quad -3x \end{array}$$

$$-4 = 2 \text{ False}$$

No Solution

Parallel Lines

- 9.) The school that Stefan goes to is selling tickets to a choral performance. On the first day of ticket sales the school sold 2 senior citizen tickets and 4 child tickets for a total of \$82. The school took in \$78 on the second day by selling 3 senior citizen tickets and 3 child tickets.

Find the price of a senior citizen ticket and the price of a child ticket. $(11, 15)$

$$\begin{aligned} x &= \text{senior citizen } \$11 \\ y &= \text{child } \$15 \end{aligned}$$

$$\begin{aligned} -3(2x + 4y &= 82) \\ 2(3x + 3y &= 78) \end{aligned}$$

$$\begin{array}{r} -6x + -12y = -246 \\ + 6x + 6y = 156 \\ \hline 0x + -6y = -90 \end{array}$$

$$\begin{aligned} \frac{-6y}{-6} &= \frac{-90}{-6} \\ y &= 15 \end{aligned}$$

$$\begin{aligned} 2x + 4y &= 82 \\ 2x + 4(15) &= 82 \\ 2x + 60 &= 82 \\ -60 \quad -60 & \\ \hline 2x &= 22 \\ \frac{2x}{2} &= \frac{22}{2} \end{aligned} \quad x=11$$

- 10.) A TV station executive is planning the new lineup for next season's shows. On Monday nights, there will be 4 sitcoms and 5 dramas, for a total of 328 minutes of programming, not counting commercials. On Tuesday nights, he has scheduled 3 sitcoms and 4 dramas, for a total of 258 minutes of non-commercial programming. All sitcoms have the same length and all dramas have the same length. How long is each type of show?

$$\begin{aligned}\text{Sitcoms} &= x & 22 \text{ minutes} \\ \text{Dramas} &= y & 48 \text{ minutes}\end{aligned}$$

$$\begin{aligned}-3(4x + 5y) &= -328 \\ 4(3x + 4y) &= 258\end{aligned}$$

$$\begin{array}{r} -12x + -15y = -984 \\ + \quad 12x + 16y = 1032 \\ \hline \end{array}$$

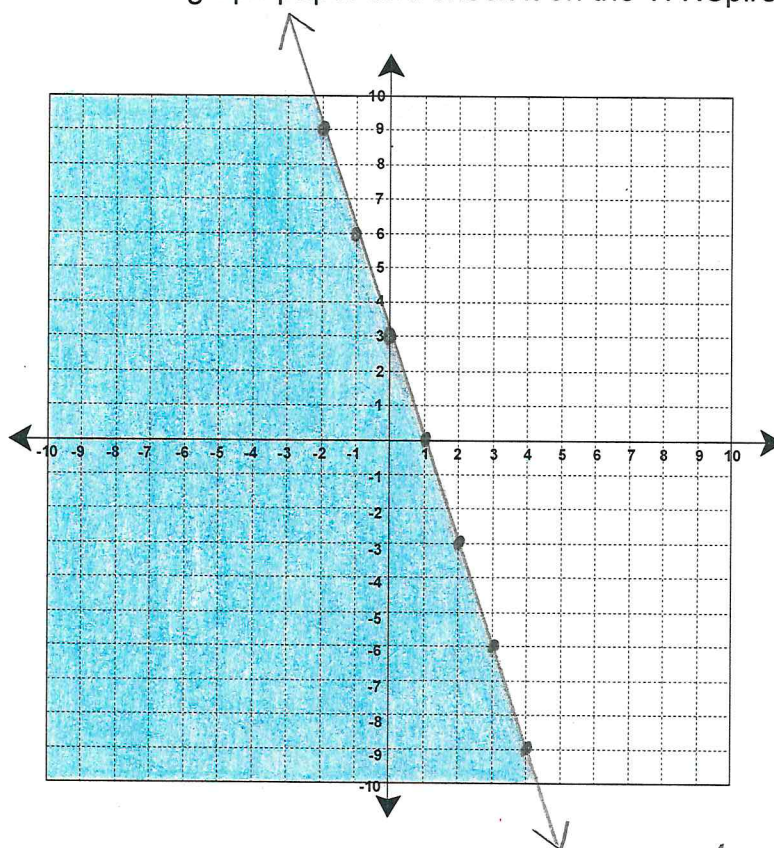
$$0x + y = 48$$

$$y = 48$$

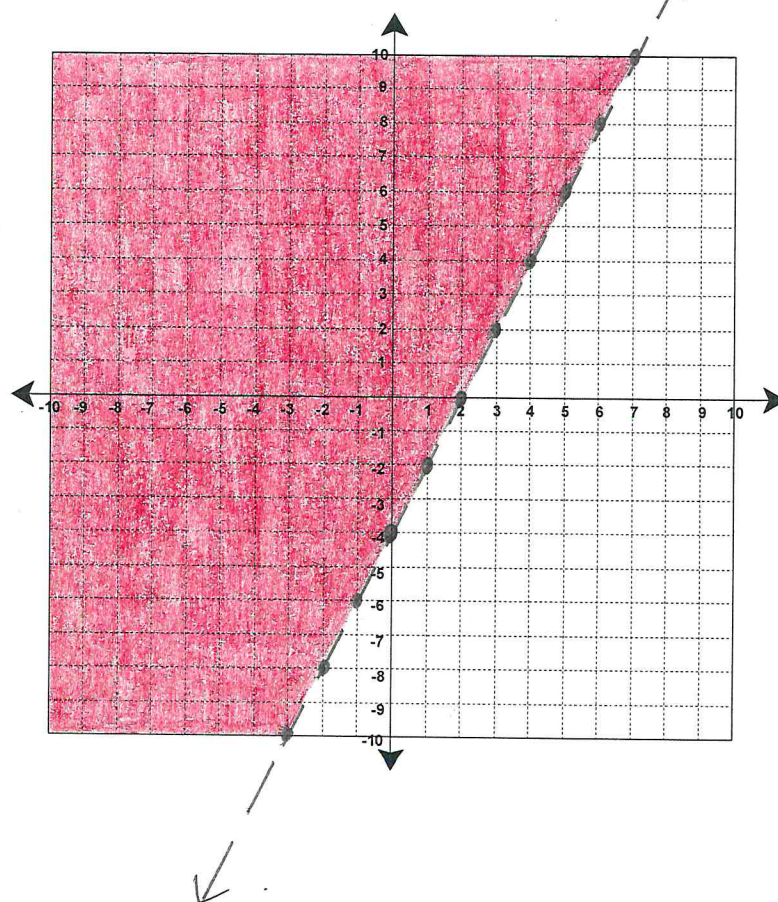
$$(22, 48)$$

$$\begin{aligned}4x + 5y &= 328 \\ 4x + 5(48) &= 328 \\ 4x + 240 &= 328 \\ -240 \quad -240 & \\ \hline 4x &= 88 \\ \frac{4x}{4} &= \frac{88}{4} \\ x &= 22\end{aligned}$$

11.) Graph $y \leq -3x + 3$ on the graph paper and check it on the TI NSpire.

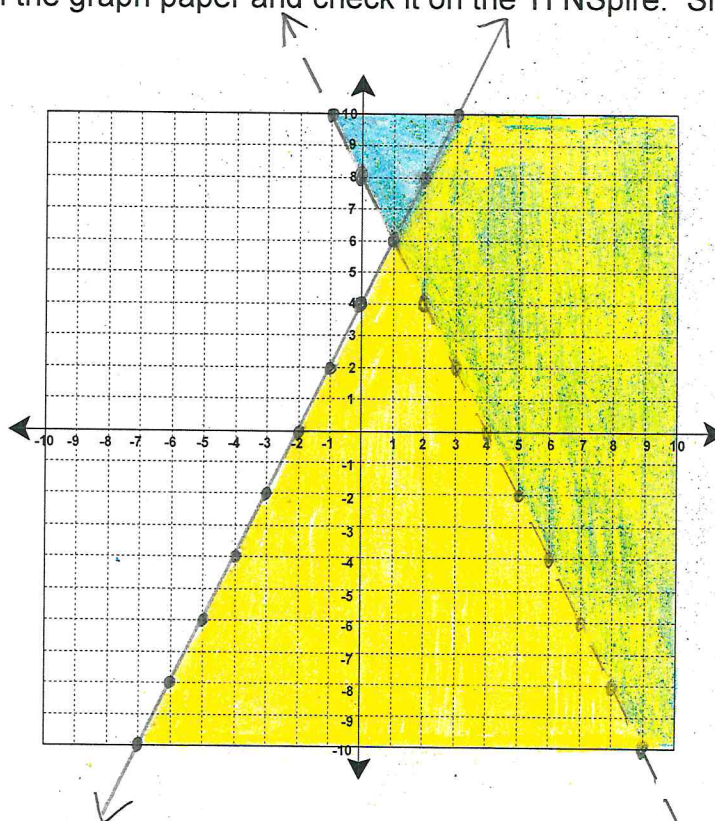


12.) Graph $y > 2x - 4$ on the graph paper and check it on the TI NSpire.



- 13.) Graph the system of inequalities on the graph paper and check it on the TI NSpire. Show the solution set on the graph.

$$\begin{cases} y \leq 2x + 4 \\ y > -2x + 8 \end{cases}$$



- 14.) Graph the system of inequalities on the graph paper and check it on the TI NSpire. Show the solution set on the graph.

$$\begin{cases} y \geq -4x + 1 \\ y < 3x + 8 \end{cases}$$

