


<p>d.) $\begin{cases} 8x - 20y = 40 \\ 2x - 5y = -15 \end{cases}$</p> <p>To eliminate, multiply the bottom equation by a -4.</p> <hr/> $\begin{array}{r} 8x - 20y = 40 \\ -4(2x - 5y = -15) \rightarrow -8x + 20y = 60 \\ \hline 0 = 100 \end{array}$ <p><u>NOT TRUE!</u></p>  <p>Inconsistent sys. of eqn.</p>	<p>e.) $\begin{cases} 7x + 8y = 25 \\ 9x + 10y = 35 \end{cases}$</p> <p>To eliminate, multiply both eqns by a # that changes the "y"s coeff. to 80. One has to use a negative.</p> <hr/> $\begin{array}{r} 10(7x + 8y = 25) \rightarrow 70x + 80y = 250 \\ -8(9x + 10y = 35) \rightarrow -72x - 80y = -280 \\ \hline -2x = -30 \\ \frac{-2x}{-2} = \frac{-30}{-2} \\ x = 15 \end{array}$ <hr/> $\begin{array}{r} 7x + 8y = 25 \\ 7(15) + 8y = 25 \\ 105 + 8y = 25 \\ \underline{-105} \quad \underline{-105} \\ 8y = -80 \\ y = -10 \end{array}$ <p>$(15, -10)$</p>	<p>f.) $\begin{cases} 4x + 2y = 14 \\ 7x - 3y = -8 \end{cases}$</p> <p>To eliminate y, change coeff. into 6.</p> <hr/> $\begin{array}{r} 3(4x + 2y = 14) \rightarrow 12x + 6y = 42 \\ 2(7x - 3y = -8) \rightarrow 14x - 6y = -16 \\ \hline 26x = 26 \\ x = 1 \end{array}$ <hr/> $\begin{array}{r} 4x + 2y = 14 \\ 4(1) + 2y = 14 \\ 4 + 2y = 14 \\ \underline{-4} \quad \underline{-4} \\ 2y = 10 \\ y = 5 \end{array}$ <p>$(1, 5)$</p>
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Example 2: Complete each problem. Make sure to find what the problem requests.

a.) Suppose your community center sells a total of 292 tickets for a basketball game. An adult ticket costs \$3 and a student ticket costs \$1. The sponsors collect \$470 in ticket sales. Find the number of adult tickets that were sold.

$A = \#$ of adult tickets $3a + 1s = 470$ $3a + 1s = 470$
 $S = \#$ of student tickets $-1(a + b = 292) \rightarrow -a - b = -292$

Two Eqns!

$$\begin{array}{r} a + b = 292 \\ 3a + 1s = 470 \\ \hline 2a = 178 \\ \frac{2a}{2} = \frac{178}{2} \\ a = 89 \end{array}$$

The number of adult tickets sold were 89.

b.) Two groups of students order burritos and tacos at a local restaurant.

One order of 3 burritos and 4 tacos costs \$11.33
The other order of 9 burritos and 5 tacos costs \$23.56.
How much does a burrito and a taco cost?

2 variables
 $b = \text{cost of a burrito}$
 $t = \text{cost of a taco}$

$$\begin{array}{r} 3b + 4t = 11.33 \rightarrow -3(3b + 4t = 11.33) \rightarrow -9b - 12t = -33.99 \\ 9b + 5t = 23.56 \rightarrow 9b + 5t = 23.56 \\ \hline -7t = -10.43 \\ \frac{-7t}{-7} = \frac{-10.43}{-7} \\ t = \$1.49 \end{array}$$

$$\begin{array}{r} 3b + 4(1.49) = 11.33 \\ 3b + 5.96 = 11.33 \\ \underline{-5.96} \quad \underline{-5.96} \\ 3b = 5.37 \\ \frac{3b}{3} = \frac{5.37}{3} \\ b = \$1.79 \end{array}$$

A burrito cost \$1.79 and a taco cost \$1.49.