

Day 6 - Problem Solving with Elimination - Practice

1. Tickets to the home basketball game are \$1.50 for student tickets and non-student tickets are \$3.25 and \$752.25 was made. There were 358 tickets sold. This system can be modeled by $\begin{cases} x+y=358 \\ 1.50x+3.25y=752.25 \end{cases}$

How many student and non-student tickets were sold?

$$\begin{array}{r} -1.50x - 1.50y = -537 \\ + 1.50x + 3.25y = 752.25 \\ \hline 1.75y = 215.25 \end{array}$$

235 student tickets and 123 adult tickets were sold.

$$\begin{array}{r} y = 123 \\ \hline x + 123 = 358 \end{array}$$

$$x = 235$$

2. A family member has some five dollar bills and one dollar bills in her wallet. Altogether, she has 53 bills and a total of \$237. How many of each bill does she have?

a. Create a system of equations:

$$\begin{cases} x + y = 53 & (\# \text{ of bills}) \\ 5x + y = 237 & (\$) \end{cases}$$

b. Solve your system of equations to determine how many of each bill she has.

$$\begin{array}{r} -5(x+y=53) \rightarrow -5x-5y=-265 \\ 5x+y=237 \\ \hline -4y=-28 \\ y=7 \\ \hline x+7=53 \\ x=46 \end{array}$$

There are 46 five dollar bills and 7 one dollar bills.

3. A language arts test is worth 100 points. There is a total of 26 questions. There are spelling word questions worth 2 points each and vocabulary word questions worth 5 points each. How many of each type of question are there?

a. Create a system of equations:

$$\begin{cases} x + y = 26 & (\# \text{ of questions}) \\ 2x + 5y = 100 & (\text{points}) \end{cases}$$

b. Solve your system of equations to determine how many of each type of question there is.

$$\begin{array}{r} -2(x+y=26) \rightarrow -2x-2y=-52 \\ 2x+5y=100 \\ \hline 3y=48 \\ y=16 \\ \hline x+16=26 \\ x=10 \end{array}$$

There are 10 spelling word questions and 16 vocab word questions.