

System of Equations Word Problems

Date 10/3/19

Period 2

1) The sum of two numbers is 143. Their difference is 19. Find the numbers.

$$\begin{array}{r} x+y=143 \\ -x-y=19 \\ \hline 2y=124 \\ \boxed{y=62} \end{array}$$

$$\begin{array}{r} x-62=19 \\ +62 \quad +62 \\ \hline x=81 \end{array} \quad (81, 62)$$

2) Cody and Willie are selling pies for a school fundraiser. Customers can buy blueberry pies and blackberry pies. Cody sold 27 blueberry pies and 41 blackberry pies for a total of \$803. Willie sold 35 blueberry pies and 83 blackberry pies for a total of \$1429. What is the cost each of one blueberry pie and one blackberry pie?

$x=10$ $x = \$$ bb pie
 $y = \$$ black b pie

$$\begin{array}{r} 27x+41(13) = 803 \\ 27x+533 = 803 \\ 27x = 270 \\ \boxed{x=10} \end{array}$$

$$\begin{array}{r} 35(27x+41y = \$803) \quad 35 \\ 27(35x+83y = \$1429) \quad 27 \\ \hline 945x+1435y = \$28,105 \\ -945x+2241y = \$38,583 \\ \hline -806y = -\$10,478 \\ \boxed{y=13} \end{array}$$

$(10, 13)$

3) The school that Lea goes to is selling tickets to a choral performance. On the first day of ticket sales the school sold 51 senior citizen tickets and 40 child tickets for a total of \$848. The school took in \$1049 on the second day by selling 17 senior citizen tickets and 83 child tickets. What is the price each of one senior citizen ticket and one child ticket?

$x =$ Senior ticket $\$$
 $y =$ child ticket $\$$

$$\begin{array}{r} 51x+40y = \$848 \\ 17x+83y = \$1049 \end{array}$$

$(8, 11)$

$x = 8$ Senior $\$$
 $y = 11$ child $\$$

4) Bill and Emily are selling fruit for a school fundraiser. Customers can buy small boxes of oranges and large boxes of oranges. Bill sold 12 small boxes of oranges and 41 large boxes of oranges for a total of \$294. Emily sold 12 small boxes of oranges and 24 large boxes of oranges for a total of \$192. Find the cost each of one small box of oranges and one large box of oranges.

$x =$ Sb
 $y =$ Lb

$$\begin{array}{r} 12x+41y = \$294 \\ -12x+24y = \$192 \\ \hline 17y = 102 \\ \boxed{y=6} \end{array}$$

$$\begin{array}{r} 12x+24(6) = \$192 \\ 12x+144 = \$192 \\ -144 \quad 144 \\ \hline 12x = 48 \\ \boxed{x=4} \end{array}$$

5) The sum of the digits of a certain two-digit number is 14. When you reverse its digits you increase the number by 36. Find the number.

= xy
 $yx = xy + 36$

$$\begin{array}{r} x+y=14 \\ 10y+x = 10x+y+36 \end{array}$$

$x=5$
 $y=9$