Notes on Writing a System of Linear Equations (Story Problems) Name: Key

Define your variable and then write a system of equations to solve.

1)

The school that Stefan goes to is selling tickets to a choral performance. On the first day of ticket sales the school sold 3 senior citizen tickets and 1 child ticket for a total of $38. The school took in $52 on the second day by selling 3 senior citizen tickets and 2 child tickets. Find the price of a senior citizen ticket and the price of a child ticket.

x = senior ticket y = child ticket

$3x + y = 38$

$-(3x + 2y = 52)$ $\Rightarrow$ $-y = -14$, $y = 14$

$3x + 14 = 38$, $3x = 24$, $x = 8$

2) Senior citizen tickets cost $8 and child tickets cost $14.

At Elisa's Printing Company LLC there are two kinds of printing presses: Model A which can print 70 books per day and Model B which can print 55 books per day. The company owns 14 total printing presses and this allows them to print 905 books per day. How many of each type of press do they have?

x = model A presses y = model B presses

$70x + 55y = 905$

$-55(x + y = 14)$ $\Rightarrow$ $70x + 55y = 905$, $-55x - 55y = -770$

$15x = 135$

$x = 9$

$9 + y = 14$, $y = 5$

3) There are 9 model A presses and 5 model B presses.

Kristin spent $131 on shirts. Fancy shirts cost $28 and plain shirts cost $15. If she bought a total of 7 then how many of each kind did she buy?

x = fancy shirts y = plain shirts

$28x + 15y = 131$

$-15(x + y = 7)$ $\Rightarrow$ $28x + 15y = 131$, $-15x - 15y = -105$

$\frac{13x}{13} = \frac{26}{13}$

$x = 2$

$2 + y = 7$, $y = 5$

Kristin bought 2 fancy and 5 plain shirts