

#3

Let x represent the larger number; let y rep. the smaller number.

$$\begin{cases} 6x + 7y = 114 & \textcircled{1} \\ 10x - 9y = 66 & \textcircled{2} \end{cases}$$

Eliminate x :

$$\textcircled{1} \times 5: 30x + 35y = 570 \quad \textcircled{1}'$$

$$\textcircled{2} \times 3: \underline{30x - 27y = 198} \quad \textcircled{2}'$$

$$\textcircled{1}' - \textcircled{2}': 0 + 62y = 372$$

$$y = \frac{372}{62} = 6$$

Sub $y=6$ into $\textcircled{2}'$:

$$10x - 9(6) = 66, \quad 10x = 66 + 54$$

$$10x = 120$$

$$x = \frac{120}{10} = 12$$

\therefore the larger number is equal to 12 and the smaller number is 6.

#47

percent $\Rightarrow \% \Rightarrow$ "out of 100"

Let x represent the amount of money invested @ 8%/a; let y rep. the amount of money invested @ 9%/a.

$$\begin{cases} x + y = 1000 & \textcircled{1} \\ 0.08x + 0.09y = 84 & \textcircled{2} \end{cases}$$

$$\text{From } \textcircled{1}: x = 1000 - y \quad \textcircled{1}'$$

$$0.08(1000 - y) + 0.09y = 84$$

$$80 - 0.08y + 0.09y = 84$$

$$0.01y = 84 - 80$$

$$0.01y = 4$$

$$\rightarrow y = \frac{4}{0.01} = 400$$

From $\textcircled{1}$

$$x = 1000 - 400$$

$$x = 600$$

\therefore