

Two solutions are mixed. One contains 45% salt and the other contains 95% salt. The new mixture contains 80 ounces of 65% salt. How much of each of the original solutions were mixed?

Let  $x$  = amt in ounces of 45% salt  
 $y$  = amt in ounces of 95% salt

$$\textcircled{1} x + y = 80$$

$$\textcircled{2} .45x + .95y = (80)(.65)$$

mult  $\textcircled{2}$  by 100 to clear decimal

$$\textcircled{2} 45x + 95y = 80(65)$$

$$\textcircled{2} 45x + 95y = 5200$$

mult.  $\textcircled{1}$  by  $-45$ , add to  $\textcircled{2}$   
 eliminate  $x$

$$\textcircled{1} -45x - 45y = 80(-45)$$

$$\textcircled{1} -45x - 45y = -3600$$

$$\textcircled{2} 45x + 95y = 5200$$

$$50y = 1600$$

$$y = 32 \text{ oz of } 95\% \text{ salt}$$

$$48 \text{ oz of } 45\% \text{ salt}$$

$$\begin{array}{r} 80 \\ -32 \\ \hline \end{array}$$

Donna invested her \$33,000 bonus and received a total of \$970 in interest after one year. If part of the money returned 4% and the remainder 2.25%, then how much did she invest at each rate?

$$\textcircled{1} x + y = 33000$$

$$\textcircled{2} .04x + .0225y = 970$$

mult  $\textcircled{2}$  times 10000, mult  $\textcircled{1}$  times  $-400$

$$\textcircled{2} 400x + 225y = 9700000$$

$$\textcircled{1} -400x - 400y = -13200000$$

$$\begin{array}{r} -175y = -3500000 \\ \hline -175 \\ \hline \end{array}$$

$$y = \begin{array}{l} \$20,000 @ 2.25\% \\ \$13,000 @ 4\% \end{array}$$

The length of a rectangular photo is 2 inches greater than the width. The perimeter is 20 inches. Find the length and width.

$$L = 2 + w$$

$$2L + 2W = 20$$

$$2(\overbrace{2+w}^L) + 2W = 20$$

$$4 + 2w + 2w = 20$$

$$\begin{array}{r} 4 + 4w = 20 \\ -4 \qquad -4 \\ \hline \end{array}$$

$$\frac{4(w)}{4} = \frac{16}{4}$$

$$\begin{array}{l} W = 4 \text{ inch} \\ L = 6 \text{ inch} \end{array}$$

On vacation Wendell buys three key chains and five postcards for \$10. His sister buys two key chains and three post cards for \$6.50. Find the cost of each souvenir.

$$\textcircled{1} 3k + 5p = 10$$

$$\textcircled{2} 2k + 3p = 6.50$$

mult  $\textcircled{1}$  times  $-2$ , mult  $\textcircled{2}$  times  $3$

$$\textcircled{1} -6k - 10p = -20$$

$$\textcircled{2} 6k + 9p = 6.50(3)$$

$$\textcircled{1} -6k - 10p = -20$$

$$6k + 9p = 19.50$$

$$\begin{array}{r} -10p = -50 \\ \hline -1 \qquad -1 \\ \hline \end{array}$$

$$p = .50 \text{ ¢}$$

$$3k + 5(.50) = 10$$

$$3k + 2.5 = 10$$

$$3k = 7.5$$

$$k = \$2.50$$