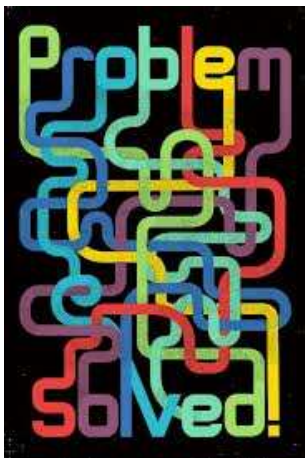


1.7 Problem Solving- Day 1



Problem Solving Strategy

Step 1: Identify two variables.

Step 2: Write two equations.

Step 3: Solve using substitution or elimination.

Step 4: Conclude.

Step 5: Mental check.

1. The larger of two numbers is 8 more than four times the smaller. If the larger is increased by 4 times the smaller, the result is 40. Find the numbers.

Let a be a #
Let b be a #

$$a = 4b + 8 \quad \textcircled{1}$$

$$a + 4b = 40 \quad \textcircled{2}$$

$$\begin{array}{r} \textcircled{1} \quad a - 4b = 8 \\ \textcircled{2} \quad a + 4b = 40 \\ \hline \textcircled{1} \quad 2a = 48 \\ \textcircled{1} \quad a = 24 \end{array}$$

Sub in $\textcircled{1}$

$$24 = 4b + 8$$

$$16 = 4b$$

$$4 = b$$

\therefore The larger is 24
smaller is 4

2. The length of a rectangle is 4 cm less than 3 times the width. The perimeter is 64 cm. Determine the length and width.



Let l be length in cm
Let w be width in cm

$$l = 3w - 4 \quad \textcircled{1}$$

$$64 = 2l + 2w \quad \textcircled{2}$$

sub $\textcircled{1}$ into $\textcircled{2}$

$$64 = 2(3w - 4) + 2w$$

$$64 = 6w - 8 + 2w$$

$$72 = 8w$$

$$9 = w$$

Sub $\textcircled{1}$

$$l = 3(9) - 4$$

$$= 27 - 4$$

$$= 23$$

\therefore The dimensions are
23 x 9 cm

3. Two years ago, Katie was twice as old as Anne was then. In 5 years, Anne will be the same age that Katie is now. How old are Anne and Katie now?

Let K be Katie's age now in yrs
Let a be Anne's age now in yrs

$$K - 2 = 2(a - 2) \quad \textcircled{1}$$

$$a + 5 = K \quad \textcircled{2}$$

Sub $\textcircled{2}$ into $\textcircled{1}$

$$a + 5 - 2 = 2(a - 2)$$

$$a + 3 = 2a - 4$$

$$7 = a$$

Sub into $\textcircled{2}$

$$K = 7 + 5 \\ = 12$$

\therefore Anne is 7
Katie is 12

4. Sportcheck sells Asics running shoes for \$82 a pair and New Balance running shoes for \$95 a pair. One day, Sportcheck sold 75 pairs of Asics and New Balance shoes for \$6241. How many pairs of each shoe were sold?



Let A be # asics shoes
Let N be # of New Balance Shoes

$$\textcircled{1} \quad a + n = 75$$

$$\textcircled{2} \quad 82a + 95n = 6241$$

$$\textcircled{1} \quad a = 75 - n$$

Sub into $\textcircled{2}$

$$82(75 - n) + 95n = 6241$$

$$6150 - 82n + 95n = 6241$$

$$13n = 91$$

$$n = 7$$

Sub into $\textcircled{1}$

$$a + 7 = 75$$

$$a = 68$$

\therefore 7 New Balance
&

68 Asics were sold

Sportcheck sold 68 pairs of Asics and 7 pairs of New Balance shoes.

Home LEARNING

p. 40 #8,15

p. 46 #1,11,12,15

