

1. The sum of two numbers is 377 and their difference is 107. Find the numbers.

let "x" represent a number

let "y" represent the other number

$$\textcircled{1} \quad x + y = 377$$

$$\textcircled{2} \quad x - y = 107$$

2. After selling a total of 427 adult and student tickets the cashier at a theatre had receipts of \$3263.50. If adult tickets sell for \$8.50 and student tickets for \$6.50, how many of each type of ticket were sold?

let "a" represent the number of adult tickets sold

let "s" represent the number of student tickets sold

$$\textcircled{1} \quad a + s = 427$$

$$\textcircled{2} \quad 8.5a + 6.5s = 3263.5$$

3. The sum of Lisa's age and Ellen's age is 41. Five years from now the sum of their ages will be three times Lisa's present age. How old is Lisa?

let "l" represent Lisa's present age in years  
let "e" represent Ellen's present age in years

$$\textcircled{1} \quad l + e = 41$$

$$\textcircled{2} \quad 3l = (l + 5) + (e + 5)$$

~~error  
 $3l + e = 51$~~

4. A coffee machine contained \$13.60 made up of dimes and quarters. If there are 97 coins, how many were there of each type?

let "d" represent of the number of dimes

let "q" represent of the number of quarters

$$\textcircled{1} \quad d + q = 97$$

$$\textcircled{2} \quad 0.10d + 0.25q = 13.60$$

5. The perimeter of a rectangle is 176 m. The length is equal to 3 times the width decreased by 4. Find the dimensions of the rectangle.

let "l" represent length in meters  
let "w" represent width in meters

$$\textcircled{1} \quad 176 = 2l + 2w$$

$$\textcircled{2} \quad l = 3w - 4$$

6. Wayne invested \$9000, part at 9%/a and the remainder at 8%/a. After one year the total interest from these investments was \$750. How much was invested at each rate?

let "a" represent the dollar amount invested at 9%/annual

let "b" represent the dollar amount invested at 8%/annual

$$\textcircled{1} \quad a + b = 9000$$

$$\textcircled{2} \quad 0.09a + 0.08b = 750$$

$$\begin{aligned} 9\% &= 0.09 \\ 8\% &= 0.08 \end{aligned}$$

7. It took Terry 7 h to drive the 390 km from Cold Bay to Morgan's Cove. He averaged 60 km/h for the first part of the trip, but was forced to complete the trip at 50 km/h due to a thunderstorm. How many hours did he spend driving at 60 km/h and 50 km/h?

let "x" represent time, in hours, travelling at 60km/h

let "y" represent time, in hours, travelling at 50km/h

$$\textcircled{1} \quad x + y = 7$$

$$\textcircled{2} \quad 60x + 50y = 390$$

8. A merchant mixes tea that sells for \$7.20/kg and tea that sells for \$9.20/kg to make 100 kg of tea that he sells for \$8.80/kg. How many kilograms of each type of tea did he mix?

let "a" represent the mass, in kilograms (kg), of a type of tea

let "b" represent the mass, in kilograms (kg), of the other type of tea

$$\textcircled{1} \quad a + b = 100$$

$$\textcircled{2} \quad \begin{aligned} 7.2a + 9.2b &= 100(8.8) \\ 7.2a + 9.2b &= 880 \end{aligned}$$

the mixture  
is 100kg  
at \$8.80  
per kg  
 $\therefore$  it costs  
\$880 in  
total!

The cost of  
this mass is  
\$880 even  
though  
people may  
buy less  
kgs.



9. Vince left Trout Creek driving at 40 km/h, Sybil followed 2 h later driving at 50 km/h  
How far down the road will Sybil overtake Vince?

$x =$  time in hours

$y =$  distance travelled

Vince  
→  $(0, 0)$   
 $(1, 40)$   
 $(2, 80)$   
 $(x, y)$

①

$$b_1 = 0$$

$$m_1 = 40 \text{ km/h}$$

$$y = 40x$$

Sybil  
 $b \rightarrow (0, ?)$   
 $(1, ?) \rightarrow (1, -50)$   
 $(2, 0)$   
 $(3, 50)$   
 $(4, 100)$

$$(0, -100)$$

②

$$b_2 = -100$$

$$m_2 = 50 \text{ km/h}$$

$$y = 50x - 100$$

10. It took 3 h for a Coast Guard patrol boat to travel 48 km up a river and 2 h for the return trip. Find the speed of the current and the speed of the boat.

let "x" represent of the speed of the boat

let "y" represent of the speed of the river current

$$\textcircled{1} \quad x - y = \frac{48\text{km}}{3\text{h}}$$

$$\textcircled{2} \quad x + y = \frac{48\text{km}}{2\text{h}}$$

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$$\textcircled{1} \quad x - y = 16$$

$$\textcircled{2} \quad x + y = 24$$

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

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To do's ① complete worksheet

② p137 #1-10  
review work

③ Download

Unit 1: Overview