Question # 2

a

Data:

Mixture = 60 liters
Ratio of milk and water = 2 : 1
New ratio of milk and water = 1 : 2
Quantity of water added = ?

Solution

$$\text{Milk} = \frac{20}{60} \times \frac{2}{3_1} = 40$$

$$\text{Water} = \frac{20}{60} \times \frac{1}{3_1} = 20$$

inold ratios = 2 : 1
quantity of ~~milk~~ and water = 40 : 20

New ratio = 1 : 2
means water needs to be doubled in quantity as compare to milk
water quantity = 40 x 2 = 80
Need to add = 80 - 20 = 60

Answer: In order to have 2 : 1 ratio of milk and water 60 liter water needs to be added further.

2b

Data:

	Present	10 yem ago	10 years later
age of son	x	$x-10$	$x+10$
age of father	y	$3x-10$	$2(x+10)$

Solution:

$$3x-10 = 2x+20$$
$$3x-2x = 20+10$$
$$x = 30$$

Present son age = 30

Father age after 10 yem = $2x+20$
$= 2(30)+20$
$= 60+20$
$= 80$

Father present age = $80-10 = 70$

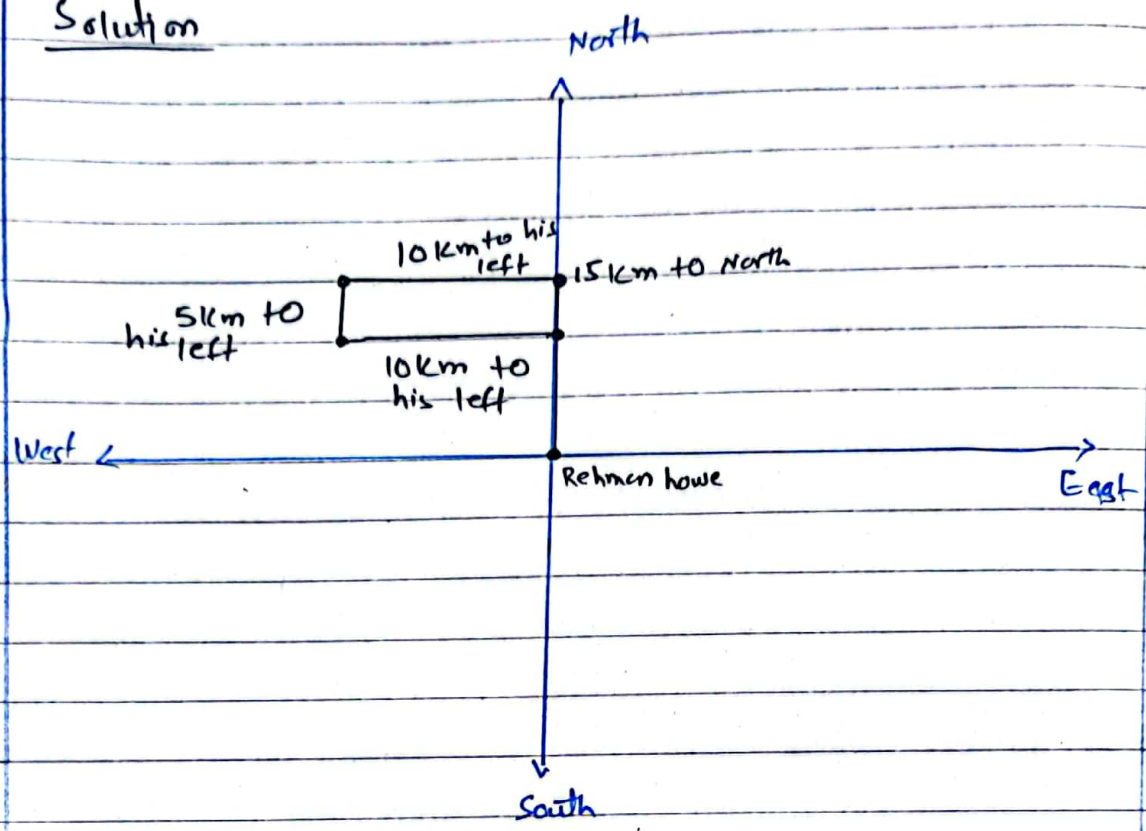
Ratios of son to father = 30 : 70
Simplify = 3 : 7

2c

Data

- First went 15 km to North from his house
- 2nd went to 10 km from itsis left
- 3rd went to 5 km from itsis left
- 4th went to 10 km from his left

Solution



~~2-~~ ~~How far~~

1 - In which direction is he from his house?

Answer = North direction from his house

2- How far is he from his house?

Answer = 10 km from his house.

3- How much distance he had travelled?

Answer: Total covered distance = 15 km + 10km + 5 km + 10km

= 40 km.

4d

Data:

Ratio of train 1 and 2 = 7 : 8

2nd train ~~speed~~ distance covered 400 km

time of 2nd train = 4 hours.

Speed of train one(1) = ?

Solution:

Speed of 2nd train = $\frac{\text{Distance}}{\text{time}} = \frac{400}{4}$

= 100 km

Ratio = 7 : 8

Speed = ? : 100 km

1 Part of speed of 2nd train = $\frac{100}{8} = 12.5$

Speed of 1st train = 12.5 × 7 =

= 87.5

$8\overline{)100(12.5}$
8
20
16
40
40
0

12.5
× 7
87.5

Question # 3

3(a)

Data:-

3 Partners = x : y : z

Profit ratios = 5 : 7 : 8

Duration in month = 14 : 8 : 7

Investment ratio = ? : ? : ?

Solution:

Investment ratio = Product of profit ratios and investment duration

= 14×5 : 8×7 : 7×8

$= 70 : 56 : 56$

$= 10 : 8 : 8$

$= 5 : 4 : 4$

$x : y : z$

Investment Ratios = 5 : 4 : 4

36

Data

average of 3 consecutive odd numbers = 91

find the numbers = ?

Solution:

Formula = average = $\frac{x + x+2 + x+4}{3}$

$= 91 = \frac{3x+6}{3}$

$91 \times 3 = 3x + 6$

$273 = 3x + 6$

$273 + 6 = 3x$

$279 = 3x$

$x = \frac{279}{3} = 93$

$x = 93$

First number = 93

Second number = $93 + 2 = 95$

Third number = $93 + 4 = 97$

$91 \times 3 = 273$

3c

Data :

- 40% of a number is equals to $\frac{2}{3}$ of another number
- find ratios of first number to 2nd.

Solution

First number = x

Second number = y

$$40\% \text{ of } x = \frac{2}{3} \text{ of } y$$

$$\frac{40}{100} x = \frac{2}{3} y$$

$$\frac{2x}{5} = \frac{2y}{3}$$

Cross multiplication $\Rightarrow$ $6x = 10y$

$$\frac{x}{y} = \frac{10}{6} = \frac{5}{3}$$

Ratios = $x : y = 3 : 5$

3d

Data :

light distance from tree = 4m

Shadow of tree on building = building height = 50m

tree distance from building = 6 m

tree height = ?

Solution:

Total distance of light from building

= 4 m + 6 m = 10 m

	Distence	Height
light from tree	4 m	↑ 50 = Building height.
light from building	10 m ↓	x = Tree height.

$$\frac{x}{50} = \frac{4}{10}$$

cross multiplication $10x = 200$

$$x = \frac{200}{10} = 20$$

Tree height = 20 metens.