

Muqaddas Jamil

Question NO 2

Part (A)

In a mixture 60 litres, the ratio of milk and water is 2:1

$$\Rightarrow 2+1=3$$

$$\text{and Water} = \frac{1}{3}(60) = 20 \text{ litres}$$

$$\text{milk} = \frac{2}{3}(60) = 40 \text{ litres}$$

Now, if the ratio is to be 1:2,

$$\text{Then Water} = 40 \text{ litres}$$

$$\text{and Milk} = 20 \text{ litres}$$

Therefore 20 litres more was further added.

Part (B)

Let the age of son =  $x$  years

Let the age of father =  $y$  years.

The age of father 10 years ago was twice the age of his son

$$y-10 = 2(x-10) \quad \text{--- (i)}$$

Ten years hence, father's age will be twice that of his son

$$y+10 = 2(x+10) \quad \text{--- (ii)}$$

Solving eq (i) & (ii)

$$y - 10 = 3x - 30$$

$$2y = 5x \quad y + 10 = 2x + 20$$

$$0 = x - 10$$

$$\Rightarrow x = 10$$

put in eq (iii)

$$2x = y - 10$$

$$2(10) = y - 10$$

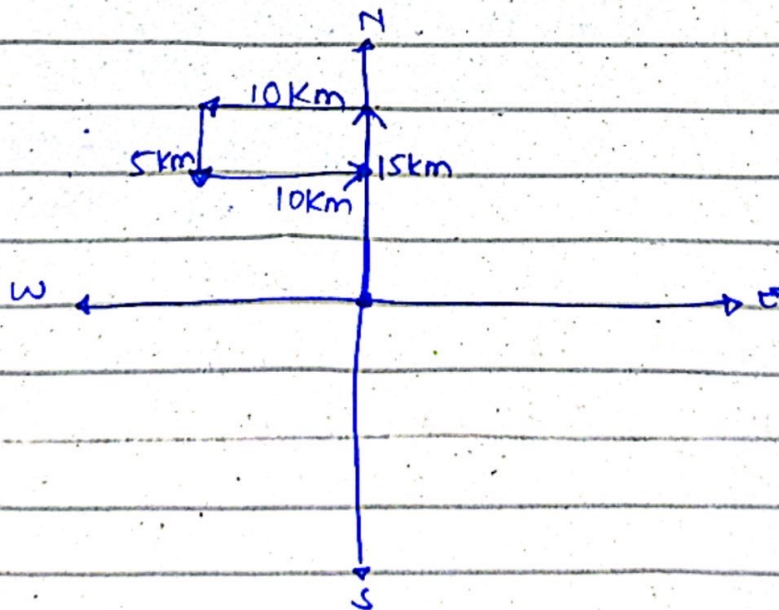
$$20 + 10 = y$$

$$\Rightarrow y = 30$$

Therefore  $\frac{y}{x} = \frac{30}{10} = \frac{3}{1}$

$$y : x = 3 : 1$$

Part C



1) In which direction is he from his house?

Ans: ~~North~~ East



2) How far is he from his house?

Ans: 10km

3) How much distance he had travelled?

Ans: 40 km

Part (D)

Ratio between the speeds of two trains is  $7:8$ .

$$\frac{v_1}{v_2} = \frac{7}{8} \quad \text{--- (1)}$$

Second train runs 400 km in 4 hours

$$v_2 = \frac{400}{4} = 100 \text{ km/hr.}$$

From eq 1)  $\Rightarrow v_1 = \frac{7}{8} v_2$

$$v_1 = \frac{7}{8} (100) = 87.5$$

$$v_1 = 87.5$$

Speed of first train is 87.5 km/hr

$$\begin{array}{r} 87 \\ 175 \\ 16 \\ \hline 16 \end{array}$$