

Q3

— (A) —

Given:

Three Partners share the profit in
the ratio = 5:7:8

They invested for 14, 8, 7 months respectively
Ratio of their investment

Solution:

$$I_1 : I_2 : I_3 = ?$$

$$14I_1 : 8I_2 : 7I_3 \rightarrow \text{multiplying by} \\ \text{number of months}$$

$$\frac{14I_1}{8I_2} = \frac{8I_2}{7I_3} \rightarrow \textcircled{i}$$

$$\frac{14I_1}{8I_2} = \frac{14I_1}{7I_3} \Rightarrow 8I_2 = 7I_3 \\ \Rightarrow \frac{I_2}{I_3} = \frac{7}{8} \rightarrow \textcircled{ii}$$

$$\frac{14I_1}{7I_3} = \frac{8I_2}{7I_3}$$

$$\frac{I_1}{I_2} = \frac{8}{14} = \frac{I_1}{I_2} = \frac{4}{7} \rightarrow \textcircled{iii}$$

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Using (ii) and (iii)
and finding continued ratio

$$\frac{I_1}{I_3} =$$

=

$$\frac{I_1}{8}$$

$$\frac{I_1}{I_2} =$$

=

$$\frac{4}{7}$$

I_1

I_2

I_3

4

7

8

$$28 : 49 : 56$$

$$I_1 : I_2 : I_3 = 28 : 49 : 56$$

$$= 4 : 7 : 8$$

Ratio of investment = 4:7:8

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-(B)-

Solution

Avg of three consecutive odd numbers is 91

Let the number be x

$$\frac{(x) + (x+2) + (x+4)}{3} = 91$$

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

$$\cancel{3}(x+2) = 91$$

$$x = 91 - 2 = 89$$

$$x+2 = 91$$

$$x+4 = 93$$

The numbers are 89, 91, 93

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(C)

Solution :-

Given: 40% of number a number =

$\frac{2}{3}$ of another number

then ratio of 1st and 2nd number

Let $x =$ 1st number

$y =$ 2nd number

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

$$\frac{4}{10} x = \frac{2}{3} y$$

$$x = \frac{2 \times 10 y}{4 \times 3}$$

$$\frac{x}{y} = \frac{20}{12} = \frac{5}{3}$$

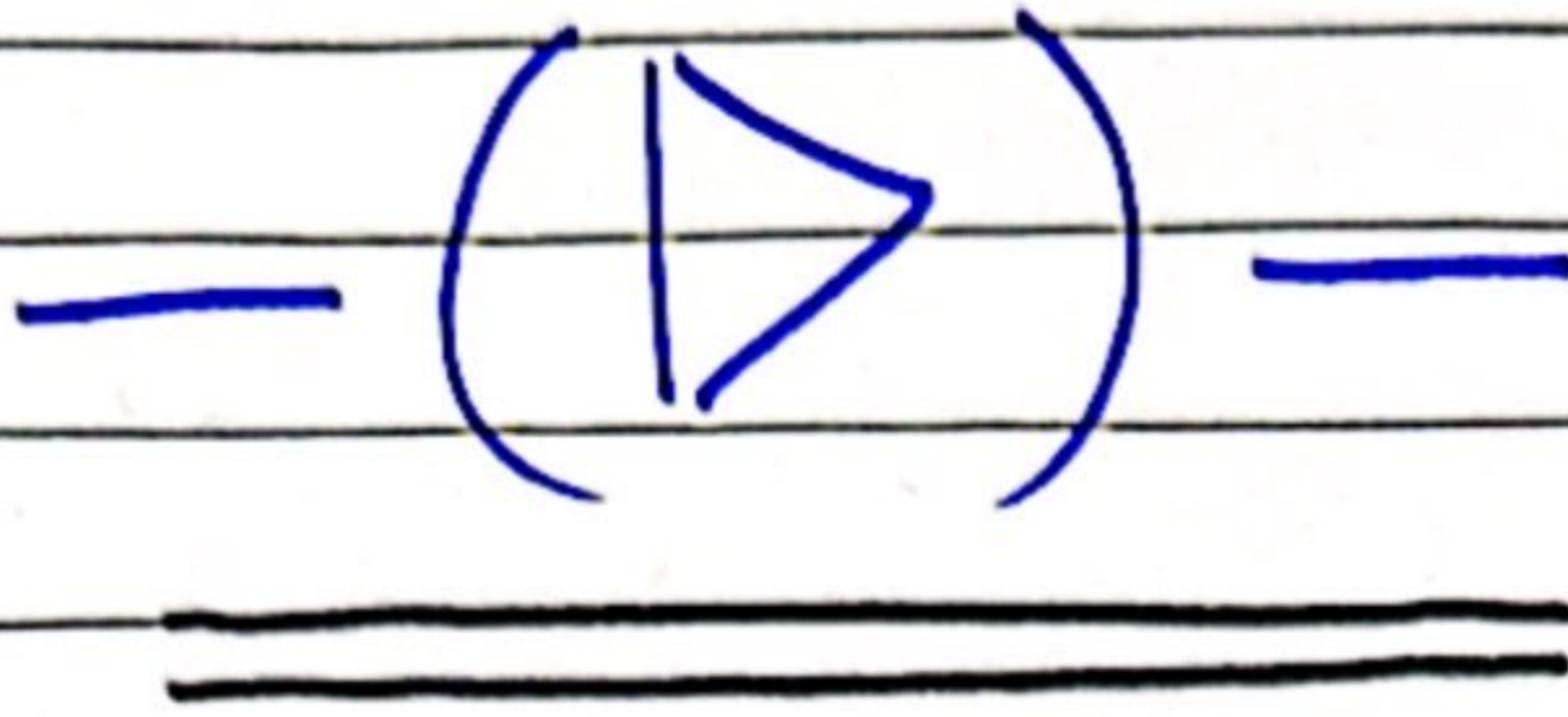
$$\frac{x}{y} = \frac{5}{3}$$

$$x:y = 5:3$$

First number: Second number =

5 : 3

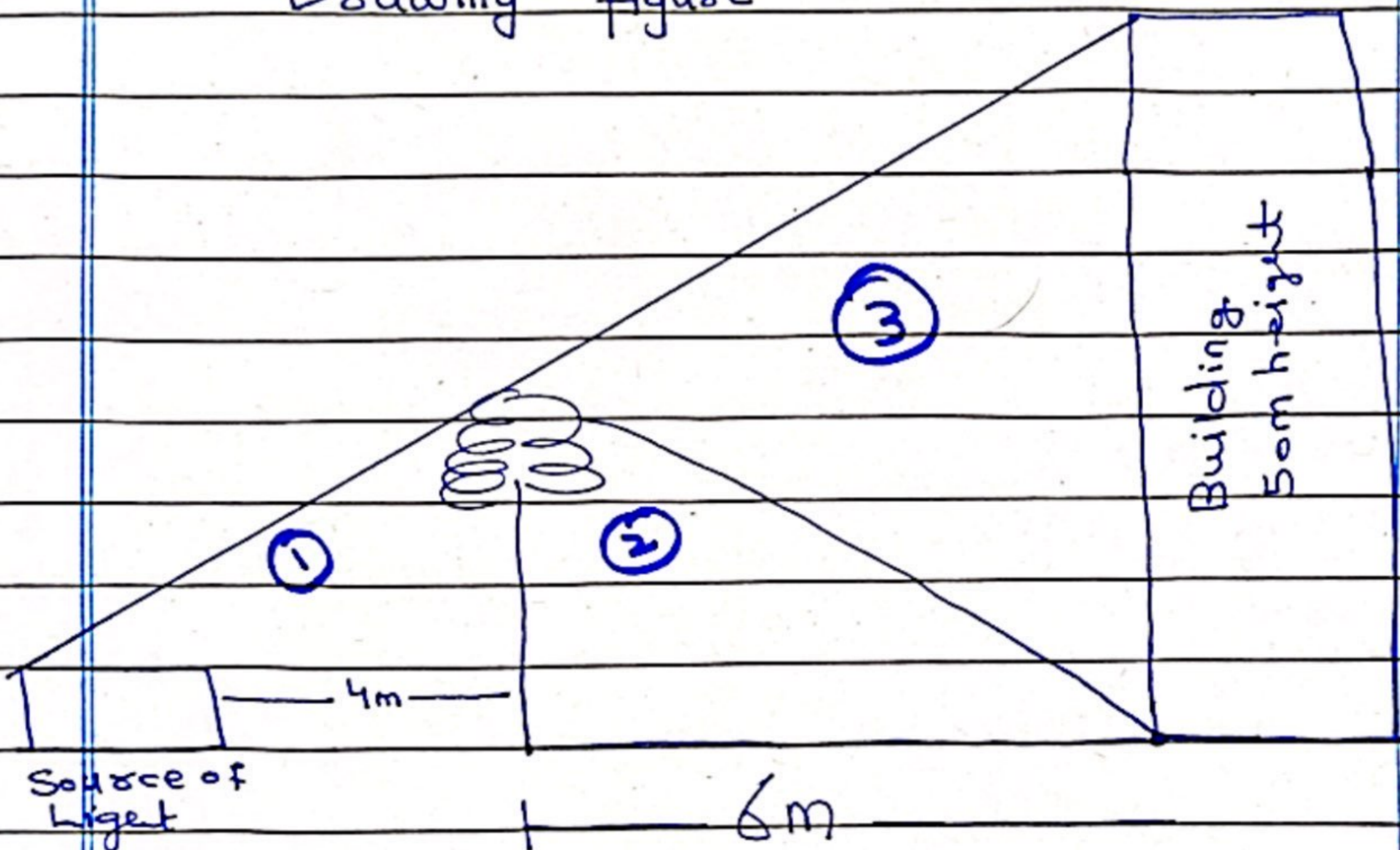
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Solution:

Given

Drawing Figure



⇒ Using similar triangle theorem: using triangle ① and ③

$$\frac{\text{height of tree}}{\text{distance b/w tree and light}} = \frac{\text{height of building}}{\text{distance b/w building and light source}}$$

$$\frac{\text{height of tree}}{4\text{m}} = \frac{50\text{m}}{6+4}$$

$$= \frac{2}{4} \times \frac{10}{50}$$

5 × 2

$$\text{height of tree} = 20\text{m}$$

~~Q 2~~

(A)

Solution.

Given data:

Mixture = 60 litres (2:1) = milk: water

Reversing the ratio (1:2) = milk: water

how much water required.

$$\text{At } 2:1 \text{ ratio} \Rightarrow \text{milk} = \frac{2}{3} \times 60 = 40 \text{ litres}$$

$$\Rightarrow \text{water} = 60 - 40 = 20 \text{ litres}$$

$$\text{milk : water} = 40 : 20$$

Multiplying water $\times 4$

$$\text{milk : water} = 40 : 80$$

$$\text{milk : water} = 1 : 2$$

$$80 - 20 \text{ litres water} = 60 \text{ litres}$$

60 litre water should
be added

(B)

Solution:

Given data:

10 years ago (Age of Father) = Son age

Ten years after (Age of Father) = 2 x Son age

$$F_{age} - 10 = \text{Son age} \rightarrow \textcircled{1}$$

$$F_{age} + 10 = 2 \times \text{Son age} \rightarrow \textcircled{2}$$

Subtracting $\textcircled{2}$ from $\textcircled{1}$

$$\begin{array}{r} F_{age} - 10 = \text{Son age} \\ \pm F_{age} \pm 10 \quad + 2 \text{ Son age} \\ \hline -20 = - \text{Son age} \end{array}$$

$$\text{Son age} = 20y \rightarrow \textcircled{3}$$

Putting in $\textcircled{1}$

$$F_{age} = 10 + \text{Son age}$$

$$F_{age} = 10 + 20 = 30y$$

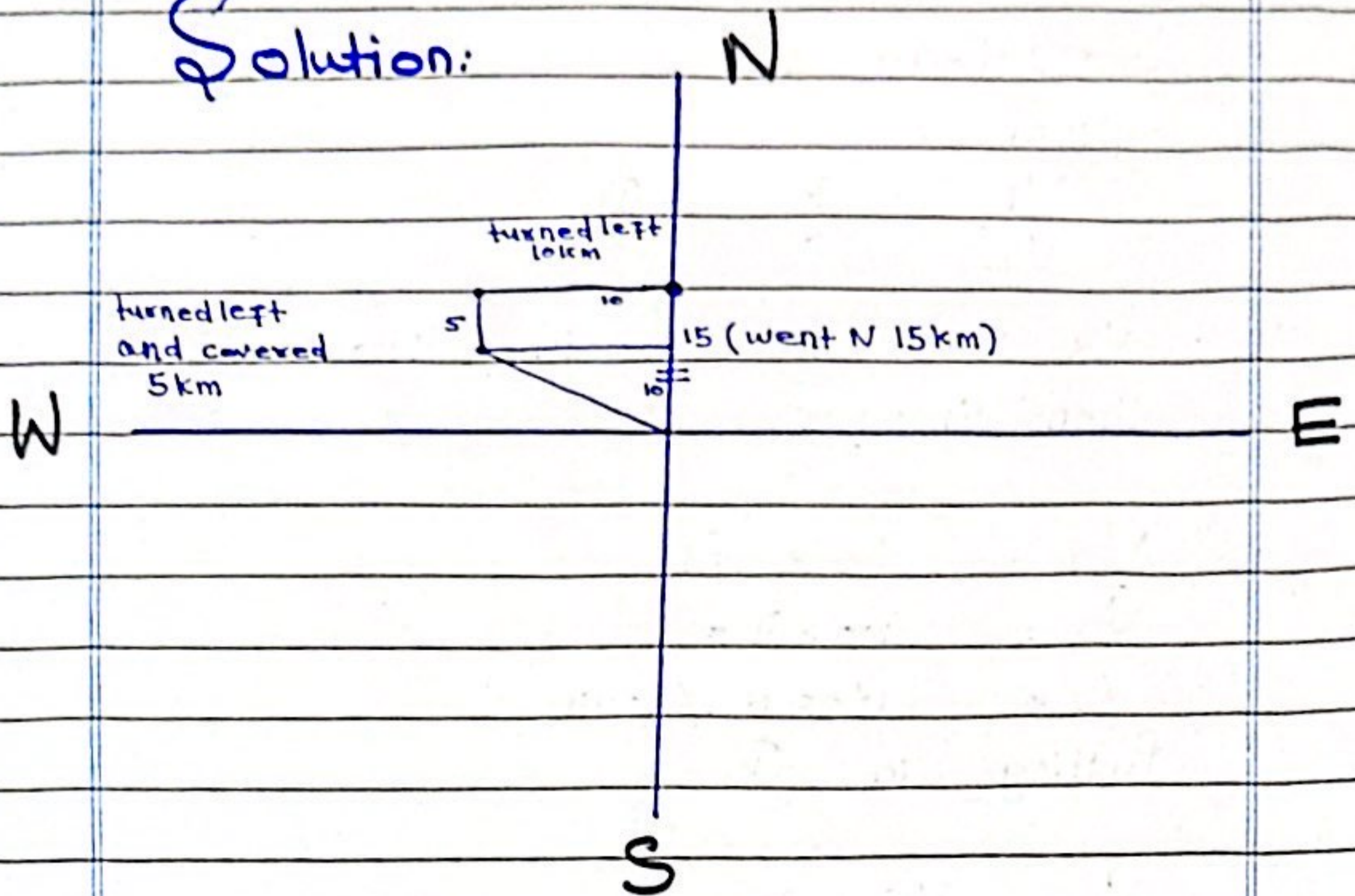
$$\frac{F_{age}}{\text{Son age}} = \frac{30y}{20y} = 3:2$$

Ratio of their ages = 3:2

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(c)

Solution:

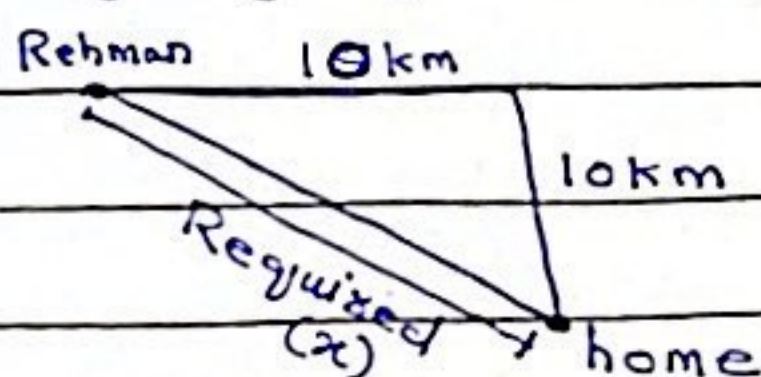


1) He is in north-west direction from home

(iii) $15 + 10 + 5 = 30 \text{ km}$ (total distance covered)

(ii) distance from home:

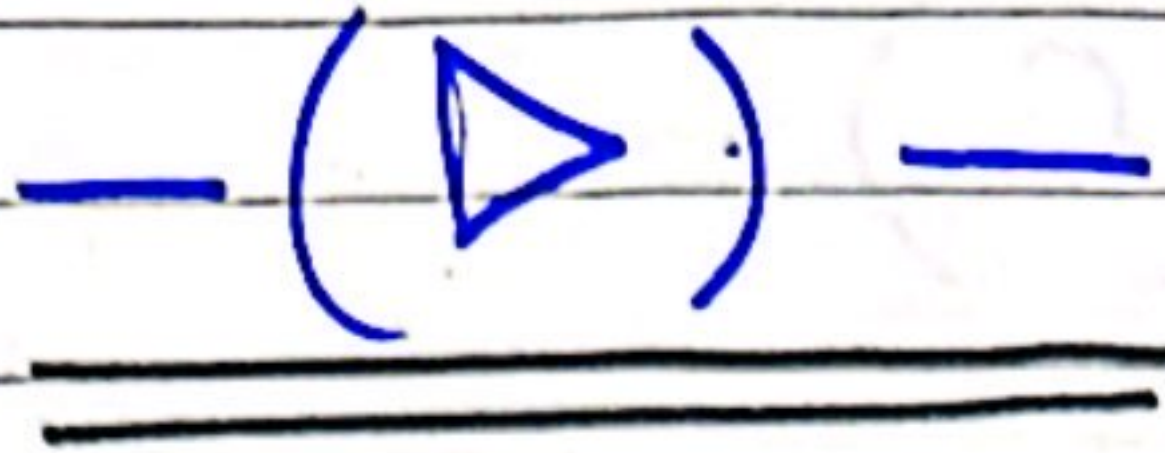
Using Pythagoras Theorem



$$x^2 = 10^2 + 10^2$$

$$= \sqrt{200} = 14.2 \text{ km away from home}$$

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Solution=

Given:

$$\frac{V_1}{V_2} = \frac{7}{8} \rightarrow \textcircled{1}$$

V_2 runs 400 km in 4 hours

then $V_1 = ?$

$$V_2 = S_2 \times T_2$$

$$V_2 = 400 \times 4 =$$

$$V_2 = 1600 \text{ km/hour}$$

Putting in $\textcircled{1}$

$$V_1 = V_2 \times \frac{7}{8}$$

$$V_1 = 1600 \times \frac{7}{8}$$

$$= \cancel{16}^2 \times 100 \times \frac{7}{\cancel{8}}$$

$$V_1 = 1400 \text{ km/h}$$