

# Mixture - Test - Day - 1

Day - 1

Feb 5 / 2026

- 1.) The average of four numbers is 36. If one number is 48, find the average of the remaining three numbers.

$$\text{Average} = \text{Sum} \div \text{Number}$$

$$\text{Total sum of 4 numbers} = 36 \times 4 = 144$$

$$\text{Sum of remaining 3 numbers} = 144 - 48 = 96$$

$$\text{Average of remaining 3} = \frac{96}{3} = 32$$

Answer : 32

- 2) The present age of A is twice B's age. Five years ago, the ratio of their ages was 9:4. Find A's present age?

$$5 \text{ years ago, ratio} = 9:4$$

Present age: ~~B~~

$$B = x$$

$$A = 2x$$

5 years ago:

$$A = 2x - 5$$

$$B = x - 5$$

$$\frac{2x - 5}{x - 5} = \frac{9}{4}$$

$$4(2x - 5) = 9(x - 5)$$

$$8x - 20 = 9x - 45$$

$$x = 25$$

$$A \text{ present age} = 2 \times 25 = 50$$

Answer : 50 years

- 3) A shopkeeper buys an article for ₹ 800 & sells it for ₹ 680. Find his loss percentage?

$$\text{Loss} = \text{CP} - \text{SP}$$

$$= 800 - 680$$

Loss = 120

$$\text{Loss \%} = (\text{Loss} \div \text{CP}) \times 100$$

$$= (120 \div 800) \times 100$$

Answer : 15 %

4) A train 150m long crosses a pole in 10 seconds. Find its speed in km/hr

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

$$= \frac{15}{10}$$

$$\text{Speed} = 1.5 \text{ m/s}$$

$$\frac{s}{t} \quad \frac{m/s}{s} \quad \frac{18/5}{10} \quad \frac{18/5}{10}$$

Convert to km/hr :

$$= \frac{3}{18} \times 18/5$$

$$= 54 \text{ km/hr}$$

$$\begin{array}{r} 18 \\ \times 5 \\ \hline 54 \end{array} \quad \begin{array}{l} \text{m/s} \rightarrow \text{hr.} \\ \hookrightarrow 18/5 \\ \text{hr} \rightarrow \text{m/s} \\ \hookrightarrow 5/18 \end{array}$$

Answer : 54 km/hr

5.) The ratio of two numbers is 5:8. If their sum is 78, find the smaller number?

$$\text{Ratio} = 5:8, \text{ sum} = 78$$

$$\text{Total parts} = 5+8 = 13$$

$$\text{One part} = \frac{78}{13} = 6$$

$$\text{Smaller number} = 5 \times 6 = 30$$

Answer : 30

6.) A man spends 40% of his income on rent & 25% on food. If he saves ₹4,200, which is 35% of his income, find his total income?

$$\text{Savings} = ₹4200 = 35\% \text{ of income}$$

$$\text{Income} = \frac{4200}{35} \times \frac{100}{7}$$

$$\text{Income} = ₹12,000$$

Answer : ₹12,000

7.) The average of 8 numbers is 55. If one number is removed, the new average becomes 52. Find the removed number?

$$\text{Total sum} = 8 \times 55 = 440$$

$$\text{New avg of 7 numbers} = 52$$

$$\text{New sum} = 7 \times 52 = 364$$

$$\text{Removed number} = 440 - 364 \Rightarrow 76$$

Answer: 76

$$\begin{array}{r} 127 \\ 125 \\ \hline 2 \\ 52 \\ \hline 7 \\ 364 \\ \hline 364 \\ \hline 36 \\ 36 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 9 \\ 310 \\ 440 \\ \hline 364 \\ \hline 36 \\ 36 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 13 \\ 310 \\ 440 \\ \hline 364 \\ \hline 76 \end{array}$$

8.) A's present age is three times B's age. After 8 years, the ratio becomes 14:5. Find B's present age?

Present age of A & B:

$$B = x$$

$$A = 3x$$

After 8 years:

$$A:B = 14:5$$

$$A = 3x + 8$$

$$B = x + 8$$

$$\frac{3x+8}{x+8} = \frac{14}{5}$$

$$5(3x+8) = 14(x+8)$$

$$15x + 40 = 14x + 112$$

$$x = 112 - 40$$

$$x = 72$$

B = 72

Answer: B's age 72

$$\begin{array}{r} 10 \\ 112 \\ 40 \\ \hline 162 \\ 140 \\ \hline 22 \\ 20 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 14 \\ 32 \\ 40 \\ \hline 52 \\ 45 \\ \hline 7 \end{array}$$

⑨ A shopkeeper sells an article at 20% profit. If the cost price is ₹ 450, find the selling price.

$$SP \% = 20\% \text{ profit}$$

$$CP = 450$$

$$SP = ?$$

$$SP = CP \times (1 + \text{profit})$$

$$= 450 \times (1 + 20) \Rightarrow 450 \times 1.20 \Rightarrow 540$$

Answer : ₹ 540

⑩ A train running at 60 km/hr crosses a platform in 30 seconds. If the platform is 240 m long, find the length of the train?

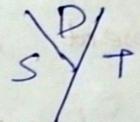
$$\text{m/s} \rightarrow \text{hr/km} \Rightarrow \frac{18}{5} \text{ km/h}$$

$$60 \times \frac{5}{18} = 16.67 \times 30 \approx 500 \text{ m.}$$

$$\text{Platform length} = 240 \text{ m}$$

$$\text{Train Length} = 500 - 240 = 260 \text{ m}$$

Answer : 260 m



⑪ Two numbers are in the ratio 7:9. If the larger exceeds the smaller by 24, find the smaller number?

$$\text{Ratio} = 7:9, \text{ Difference} = 24$$

$$\text{Difference of ratio} = 9 - 7 = 2$$

$$1 \text{ part} = 24 \div 2 = 12$$

$$\text{Smaller number} = 7 \times 12 = 84$$

Answer : 84

(12) A person scores 36 marks. This is 60% of the passing marks. Find the passing marks?

$$\text{Passing mark} = 36 \div 60 \times 100 \Rightarrow 60$$

Answer : 60 marks

(13) The average age of A, B and C is 28. If A is 4 years older than B and B is 4 years older than C, find B's age?

$$\text{Let } C = x \quad A, B, C = 28$$

$$B = x + 4$$

$$A = 4 \text{ years older than } B$$

$$B = 4 \text{ years older than } C$$

$$B = ?$$

$$x + (x+4) + (x+8) = 84$$

$$3x + 12 = 84$$

$$x = 24$$

$$B's \text{ age} = 24 + 4 = 28 \text{ years}$$

Answer : 28 years

(14) A trader sells a shirt at 10% loss for ₹ 540. Find the cost price?

$$SP \% = 10\% \text{ loss}, SP = 540$$

$$CP = ?$$

$$CP = SP / (1 - \text{Loss \%})$$

$$= 540 / (1 - 10\%) \Rightarrow 540 \div 0.9 \Rightarrow 600$$

Answer : ₹ 600

(15) A train 180 m long crosses another train 120 m long coming from the opposite direction at 54 km/hr in 12 seconds. Find the speed of the first train?

$$\text{Length of first train} = 180 \text{ m}$$

$$\text{Length of second train} = 120 \text{ m}$$

$$\text{Speed of second train} = \cancel{12 \text{ seconds}} \cdot 54 \text{ km/hr}$$

$$\text{Time taken} = 12 \text{ seconds}$$

→ More opposite directions.

D  
S/T

$$\text{Total distance} = 180 + 120 = 300 \text{ m}$$

$$\text{Relative speed} = \frac{25}{\cancel{12}} = 25 \text{ m/s}$$

$$\text{Speed to m/s} \\ \frac{5}{4} \times \frac{5}{18} = 15 \text{ m/s}$$

$$\begin{array}{r} 18 \\ 12 \\ \hline 36 \\ 18 \\ \hline 54 \end{array}$$

1<sup>st</sup> train speed -

$$\text{Speed of first train} + 15 = 25 \\ \text{II} \quad \quad \quad = 10 \text{ m/s}$$

Convert to km/hr :-

$$10 \times \frac{18}{5} = \boxed{36 \text{ km/hr.}}$$

Answer:  
Speed of first train = 36 km/hr.