

30

GENERAL SCIENCE AND ABILITY.
TEST # 3.

QUESTION #2.

Two numbers . . . number is?

SOLUTION (A):

$$\text{Ratio} = 3:5 \text{ or } \frac{3x}{5x}$$

if 9 is subtracted.
then;

$$\frac{3x-9}{5x-9} \text{ new ratio.}$$

$$\frac{3x-9}{5x-9} = \frac{12}{23}$$

$$3x-9(23) = 12(5x-9)$$

$$69x - 207 = 60x - 108$$

$$69x - 60x = -108 + 207$$

$$9x = 99 \quad | \quad \frac{9x}{9} = \frac{99}{9} \quad | \quad 11$$

$$\text{So; } x = 11$$

$$3x = 3(11) = 33$$

Hence 33 is the smaller number.

(B)SOLUTION.

Let three investment be:

 $Sx : 7x : 8x$ part received for.

$$Sx \times 14 = 70x, \quad 7x \times 8 = 56x, \\ 8x \times 7 = 56x.$$

So;

~~$$70\frac{1}{2} : 56\frac{1}{2} : 56\frac{1}{2}$$~~

$$= 35 : 28 : 28.$$

(C)SOLUTION:

$$\text{Avg weight of } \frac{A+B+C}{3} = 45 \text{ kg.}$$

$$A+B+C = 135. \quad \checkmark \text{--- (1)}$$

$$\text{Avg weight of } \frac{A+B}{2} = 40 \text{ kg.}$$

$$A+B = 80. \quad \text{--- (2)}$$

$$\text{Avg weight of } \frac{B+C}{2} = 43 \text{ kg}$$

$$= 86. \quad \text{--- (3)}$$

Now:

$$A + B + C - (A + B) = 135 - 80 = 55.$$

weight of $C = 55 \rightarrow$

$$A + B + C - (B + C) = 135 - 86 = 49.$$

weight of $A = 49 \rightarrow$

We have the weight of A & C.
and will subtract it from A+B+C
we will get B's weight.

$$A + B + C - (A + C) = 135 - (55 + 49).$$

weight of $B = 31 \rightarrow$ Ans.

(D)

SOLUTION.positive number = x & 17.

$$x + 17 = 60 \times \frac{1}{2}$$

$$x^2 + 17x = 60.$$

$$x^2 + 17x - 60 = 0.$$

$$x^2 + 20x - 3x - 60 = 0.$$

$$x(x+20) - 3(x+20) = 0.$$

$$(x-3)(x+20)$$

$$x = 3, \quad x = -20$$

positive number \rightarrow $x = 3$.

QUESTION #3:

(A)

SOLUTION:

$$\text{Percentage Profit} = \left(\frac{\text{Selling Price} - \text{Cost Price}}{\text{Cost Price}} \right) \times 100$$

$$= \frac{1920 - x}{x} \times 100$$

$$\text{Percentage Loss} = \left(\frac{\text{C.P.} - \text{S.P.}}{\text{C.P.}} \right) \times 100$$

$$= \frac{x - 1280}{x} \times 100$$

$$\frac{1920 - x}{x} = \frac{x - 1280}{x}$$

$$1920 + 1280 = 2x \quad \text{400}$$

$$3200 = 2x \quad \text{25}$$

$$x = 1600 \quad \begin{array}{r} 2000 \\ 800 \times \\ \hline 16000 \end{array}$$

$$1600 = x$$

$$\text{S.P.} = \text{C.P.} + (25\% \times \text{C.P.})$$

$$= 1600 + (25\% \times 1600)$$

$$= 1600 + 400$$

$$= 2000 \quad \text{Ans.}$$

Article should be sold at

2000

S

(B)

SOLUTION:

$$A = \frac{1}{15}, \quad B = \frac{1}{20}$$

combined:

$$L \rightarrow = \frac{1 \times 4}{15 \times 4} + \frac{1 \times 3}{20 \times 3}$$

$$\frac{4}{60} + \frac{3}{60} = \frac{7}{60}$$

work done in 4 days.

$$\frac{4 \times 7}{60} = \frac{28}{60} = \frac{7}{15}$$

Fraction of work left.

$$= \frac{1 \times 15}{1 \times 15} - \frac{7}{15} = \frac{15 - 7}{15} = \frac{8}{15}$$

Ans.

(C)

SOLUTION:

age of person = 2, age of mother = 4.
 2's age is two fifth age of his mother.

$$\textcircled{1} \rightarrow 2 = \frac{2}{5} \times 4 \rightarrow \text{or} \quad 4 = \frac{5}{2} \times 2 \rightarrow \textcircled{2}$$

After 8 years,

$$2 + 8 = \frac{2}{5}(4 + 8) \rightarrow \textcircled{3}$$

Substitute eq 2 in 4's place.

$$x + 8 = \frac{2}{2} \left(\frac{5x + 8}{2} \right)$$

$$x + 8 = \frac{5x}{2} + 4.$$

$$(x + 8) \cdot 2 = 5x + 4.$$

$$4x + 16 = 5x + 4.$$

$$16 - 4 = 5x - 4x.$$

$$12 = x. \rightarrow \text{put in eq. (2)}$$

$$y = \frac{5}{2} x \text{ so;}$$

$$y = \frac{5}{2} (12)$$

$$y = 30 \cdot \text{mother's age.}$$

Note: Age problems always in like term expression for better understanding