

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;

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

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

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

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

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

$$\frac{9x}{9} = \frac{99}{9} \frac{11}{1}$$

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

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

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:

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

$$A+B+C = 135.$$

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

$$A+B = 80.$$

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

$$= 86.$$

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 =  $x$ .  $\uparrow$  17.

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

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

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

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

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

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

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

$\downarrow$   
positive number.

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QUESTION #3:

(A)

SOLUTION:

$$\text{Percentage Profit} = \frac{\text{Selling Price} - \text{Cost Price}}{\text{Cost Price}} \times 100$$

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

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

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

$$1920 - x = x - 1280$$

$$x + x = 1920 + 1280$$

$$2x = 3200$$

$$x = \frac{3200}{2}$$

$$x = 1600$$

$$1600 = x$$

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

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

$$= 1600 + 400$$

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

Article should be sold at

2000

(B)

SOLUTION:

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

combined:

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

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

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.

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

After 8 years,

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

Substitute eq 2 in 4's place.

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

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

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

$$4x + 32 = 5x + 16.$$

$$32 - 16 = 5x - 4x.$$

$$16 - 28 = x. \rightarrow \text{put in eq. ①}$$

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

$$y = \frac{5}{2} (16)$$

$$y = 40 \cdot \text{mother's age.}$$