

G.S.ATest-3Q.No. 1(2)

Let the two numbers be $3x$ and $5x$

When 9 is subtracted from each,

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

~~cross~~

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

Cross multiplying

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

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

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

$$9x = 99$$

$$x = 11$$

Date: _____

Day: _____

$$\begin{aligned} \text{Smaller number} &\Rightarrow 324 = 3(11) \\ &= 33 \end{aligned}$$

QNo. 1 (b)

Let their investment be $5x$, $7x$, and $8x$

The share of profit is proportional to
investment \times time

for the three partners

$$\begin{aligned} \text{Ratio of profits} &= 5x \times 4 : 7x \times 8 : 8x \times 7 \\ &= 20x : 56x : 56x \end{aligned}$$

Simply :

$$35 : 28 : 28$$

The ratio of their investment is $35 : 28 : 28$

QNo. 1 (c)

$$\text{Sum of weights of A, B, C} = 45 \times 3 = 135$$

$$\text{Sum of weights of A and B} = 40 \times 2 = 80$$

$$\text{Sum of weights of B and C} = 43 \times 2 = 86$$

Date: _____

Day: _____

Adding these equations

$$(A+B+C) + (A+B) + (B+C) = 135 + 80 + 86 = 301$$

$$2A + 2B + 2C = 301$$

$$A + B + C = 135$$

Subtracting $A+B+C$.

$$B = 301 - 2(135) = 31 \text{ kg}$$

Q No. 1 (d)

Let the number be x

$$x + 17 = \frac{60}{x}$$

Multiply through by x

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

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

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

$x = -20$ is not valid because

it must be positive.

So,

$x = 3$ is the number.

QNo. 2 (d)

Let the cost price of the article be
 x

Profit when sold for Rs. 1920

$$\text{Profit Percentage} = \frac{1920 - x}{x} \times 100$$

Loss when sold for Rs. 1280

$$\text{Loss Percentage} = \frac{x - 1280}{x} \times 100$$

Given that profit Percentage = Loss Percentage

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

$$1920 - x = x - 1280$$

$$2x = 3200$$

$$x = 1600$$

Now, to make a 25% profit

$$\text{Selling Price} = \text{cost price} \times \left(1 + \frac{25}{100}\right)$$

$$= 1600 \times 1.25 = 2000$$

The Article sold for Rs. 2000

Date: _____

Day: _____

Q.No.2 (b)

Work done by A in 1 day = $\frac{1}{15}$

Work done by B in 1 day = $\frac{1}{20}$

Work together in 1 day

$$= \frac{1}{15} + \frac{1}{20}$$

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

$$= \frac{7}{60}$$

Work done by A and B in 4 days

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

Work left:

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

The fraction of work left is

$$\frac{8}{15}$$

Date: _____

Day: _____

Q No. 2 (c)

Let the person's age be x and the mother's age be y .

$$x = \frac{2}{5}y$$

$$x + 8 = \frac{1}{2}(y + 8)$$

Substitute $x = \frac{2}{5}y$ into the second equation:

$$\frac{2}{5}y + 8 = \frac{1}{2}(y + 8)$$

Multiply through by 10

$$4y + 80 = 5(y + 8)$$

$$4y + 80 = 5y + 40$$

$$y = 40$$

The mother's present age is 40 years.

Q No. 2 (d)

Let the number be x

Date: _____

Day: _____

Correct result :

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

Incorrect result:

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

Error:

$$\text{Error} = \frac{\frac{5x}{3} - \frac{3x}{5}}{\frac{5x}{3}} \times 100$$

Simplify

$$\text{Error} = \frac{\frac{25x - 9x}{15}}{\frac{5x}{3}} \times 100$$

$$= \frac{\frac{16x}{15}}{\frac{5x}{3}} \times 100$$

$$\frac{16}{15} \times \frac{3}{5} \times 100 = \frac{48}{5} = 9.6\%$$

The percentage error is 9.6%
