Samra GSA Test 3 تاریخ: ______

~ (Question No.2) ~

Part A

35 Good

Sol:-

Let the two numers = $3x$ and $5x$

Given ration

$3:5$

When 9 is subtracted from each new numbers

$(3x-9)$ and $(5x-9)$

Acording to the question, the new ratio is $12:23$

- Equation

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

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

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

$$69x - 60x = -108 + 209$$

$$9x = 99$$

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

$$x = 11$$

Smaller number $= 3x$

$= 3 \times 11 \; 33$

The smaller number is 33

Part B

Sol:-

Profit Ratio = 5:7:8

Time period for partners = 14 months, 8 months, 7 months respectively

- First partner's investment

$5 \times 14 = 70$

- Second partner's investment

$7 \times 8 = 56$

- Third partner's investment

$8 \times 7 = 56$

Investment Ratio = 70:56:56

By dividing each number by 14

$\frac{70}{14} : \frac{56}{14} : \frac{56}{14} = 5:4:4$

So, the ratio of their investment is 5:4:4

تاریخ: _____

Part C

Sol:-

Given information

. The average weight of A, B and C is 45 kg

. The average weight of A and B is 40 kg

: The average weight of B and C is 43 kg.

Equations

- $= \frac{A+B+C}{3} = 45$

$= A+B+C = 45 \times 3$

$= A+B+C = 135$ — (1)

- $= \frac{A+B}{2} = 40$

$= A+B = 40 \times 2$

$= A+B = 80$ — (2)

- $= \frac{B+C}{2} = 43$

$\therefore B + C = 43 \times 2$

$\therefore B + C = 86$ — (3)

Equations

1. $A + B + C = 135$
2. $A + B = 80$
3. $B + C = 86$

Subtract equation 2 from equ. 1

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

$A + B + C - A - B = 55$

$C = 55$

By putting value of C into equ 3

$B + C = 86$

$\therefore B + 55 = 86$

$\therefore B = 86 - 55$

$B = 31$

The weight of B is 31 kg

Part - D

Sol:-

تاریخ: _____

Given that

Let a number is x

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

$$x(x+17) = 60$$

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

Equation

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

Factorization

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

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

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

$$x = 3 \quad \text{or} \quad x = -20$$

The positive number is 3.

~ (Question No. 3) ~

Part A

Sol:-

Let the cost Price = CP

The percentage of profit when the article is soled for Rs. 1920

Profit percentage = $\frac{\text{selling price} - \text{cost price}}{\text{cost price}} \times 100$

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

- The percentage loss when the artice is sold for Rs. 1280

Loss percentage = $\frac{CP - SP}{CP} \times 100$

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

Given that the % profit is equal to % Loss

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

$1920 - CP = CP - 1280$

$1920 + 1280 = 2 \times CP$

$3200 = 2CP$

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

$CP = 1600$

So, CP of the article is 1600

Profit = 25%

تاریخ: _____

• 25% of 1600

$= \frac{25}{100} \times 1600$

$= 400$

Adding profit (400) to the cost price

Selling price = 1600 + 400

= 2000

5

The article should be sold for Rs. 2000 to make a 25% profit.

Part B

Sol:-

A car can do work in 15 days $= \frac{1}{15}$

B can can do work in 20 days $= \frac{1}{20}$

• When A and B work together

for 1 day

Total work per day $= \frac{1}{15} + \frac{1}{20}$

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

$= \frac{7}{60}$

work done in 4 days $= 4 \times \frac{7}{60_{15}}$

$= \frac{7}{15}$

If the total work is 1, the fraction of work left is

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

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

$= \frac{8}{15}$

The fraction of work that is left is $\frac{8}{15}$

تاریخ ________

Part C

Sol:-

- Let the present age of the person is x
- Let the present age of the mother is y

Given that

- The present age of the person is two-fifth of the mother's age

$x = \frac{2}{5}y$ — ①

- After 8 years, the person's age will be one-half of the mother's age

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

Equations - $\boxed{x = \frac{2}{5}y}$

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

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

$2y + 40 = \frac{5}{2}(y + 8)$

تاریخ: _____

Multiply by 2 to eliminate fraction

$$2\left(2y+40\right)=2\times\frac{5}{2}\left(y+8\right)$$

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

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

$$4y-5y=40-80$$

$$-y=+40$$

$$y=40$$

Add value of y in equ ①

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

$$x=\frac{2}{8}(40)$$

$$x=16$$

The mother is 40 years old

Part D

Sol:-

Intended multiplication factor = 5/3

Incorrect multiplication factor

is 3/5

Ration of incorrect value

$$\frac{3}{5} \div \frac{5}{3}$$

$$= \frac{3}{5} \times \frac{3}{5} = \frac{9}{25}$$

Let correct value is x

Error $\left(x \times \frac{5}{3}\right) - \left(x \times \frac{3}{5}\right)$

$$\frac{5}{3} - \frac{3}{5}$$

$$= \frac{25 - 9}{15} = \frac{16}{15}$$

Error $= x \times \frac{16}{15}$

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

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

$$= \frac{48}{45} \times 100$$

$$= 64\%$$

(S)