

GSA Mock Test

Section B

Q. NO 6.

a - Depreciation rate = 10% every year

Present value = Rs 8748

Price of the machine 3 years ago = ?

$$\text{Final price} = \text{initial price} \left(\frac{1 + \text{rate}}{100} \right)^{\text{time}}$$

$$8748 = x \times \left(\frac{1 + 10}{100} \right)^3$$

$$8748 = x \times \left(\frac{90}{100} \right)^3$$

$$8748 \times \frac{10}{9} \times \frac{10}{9} \times \frac{10}{9} = x$$

$$\frac{8748000}{729} = x$$

$$12000 = x$$

Part B

let, father = y .

daughter = x .

So father = 4 daughter.

$$y = 4x.$$

(7)

After 5 years.

$$y + 5 = 3(x + 5)$$

$$y = 3x + 10 \quad \text{--- (2)}$$

After 5 years.

$$y + 5 + 5 = ?$$

So, by putting the eq 1 into 2

$$4x = 3x + 10$$

$$4x - 3x = 10$$

$$\boxed{x = 10}$$

So the present age of daughter is 10 years and 40 years of father.

After 10 years the ages will be

$$40 + 10 = 50 \quad \text{--- father}$$

$$10 + 10 = 20 \quad \text{--- daughter.}$$

So in the ratio, father : daughter.

$$50 : 20 = 5 : 2.$$

So father's age will be 2.5 times of the daughter.

Part C

$$\text{diameter} = 12 \text{ cm}$$

$$r = 6 \text{ cm}$$

$$\text{Volume of sphere} = \frac{4}{3} \pi r^3$$

$$\begin{array}{r} 4 \\ 36 \\ \times 8 \\ \hline 288 \end{array}$$

$$= \frac{4}{3} \times \pi \times (6)^3$$

$$= \frac{4}{3} \times 6^2 \times 6 \times \pi$$

$$= 288 \pi \text{ cm}^3$$

Part D

two trains cross a man in = 27 seconds

= 17 seconds

and cross each other = 23 seconds.

let the speed of two trains be x m/sec

and y m/sec

So the length of train = $27x$ m/sec

the length of 2nd train = $17y$ m/sec

$$27x + 17y = 23$$

$$27x + 17y = 23x + 23y$$

$$27x - 23x = 23y - 17y$$

$$4x = 6y$$

$$\frac{x}{y} = \frac{6}{4} = \frac{3}{2}$$

The ratio is $x:y = 3:2$ of the speed of the trains.

Q. No 7

Part A

Average of 7 consecutive number = 20
find the largest number = ?

$$\frac{\text{sum of all}}{\text{Total NO. of the numbers}} = \text{Average}$$

$$\frac{n + (n+1) + (n+2) + (n+3) + (n+4) + (n+5) + (n+6)}{7} = 20.$$

□

$$\frac{7n + 21}{7} = 20.$$

$$7n + 21 = 20 \times 7$$

$$7n + 21 = 140$$

$$7n = 140 - 21$$

$$7n = 119$$

$$n = 17.$$

$$n + 6 = 17 + 6 = 23.$$

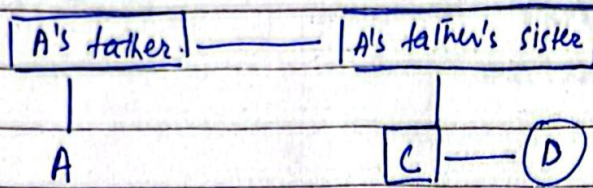
the largest number is 23

$$\begin{array}{r} 20 \\ \times 7 \\ \hline 140 \end{array}$$

$$\begin{array}{r} 21 \\ 140 \\ \hline \end{array}$$

$$\begin{array}{r} 21 \\ \hline 119 \end{array}$$

Part B



□ - male

○ - Female

= - Married couple

- - Siblings

| - Difference of a generation

So, D is sister of C.

Part C

i- 4, 18, _____, 100, 180, 294, 448

$$2^3 - 2^2 = 8 - 4 = 4$$

$$3^3 - 3^2 = 27 - 9 = 18$$

$$4^3 - 4^2 = 64 - 16 = 48$$

$$5^3 - 5^2 = 125 - 25 = 100$$

So, the missing number is 48.

ii- 1, 2, 10, 37, 101, _____

 1 2²

$$1 + 1^3 = 2$$

$$2 + 2^3 = 10$$

$$10 + 3^3 = 27 + 10 = 37$$

$$37 + 4^3 = 64 + 37 = 101$$

$$101 + 5^3 = 101 + 125 = 226$$

So, the missing number is ~~226~~ 226

$$\text{iii} - \begin{array}{ccccccc} & & 22 & & & & \\ & & \downarrow & & \downarrow & & \\ 11 & , & 17 & , & 39 & , & 85 & , & \underline{\hspace{1cm}} \\ & & \downarrow & & \downarrow & & & & \\ & & 6 & & 46 & & & & \end{array}$$

$$\begin{array}{r} 765 \\ 39 \\ \hline 46 \end{array}$$

$$11 + (3^2 - 3) = 17$$

$$17 + (5^2 - 3) = 39$$

$$39 + (7^2 - 3) = 85$$

$$85 + (9^2 - 3) = 163$$

So, the answer is 163.

$$\text{iv} - \begin{array}{ccccccc} & & 22 & & 88 & & \\ & & \downarrow & & \downarrow & & \\ 13 & , & 24 & , & 46 & , & 90 & , & 178 & , & \underline{\hspace{1cm}} \\ & & \downarrow & & \downarrow & & & & & & \\ & & 11 & & 44 & & & & & & \end{array}$$

Second difference.

$$22 - 11 = 11$$

$$44 - 22 = 22$$

$$88 - 44 = 44$$

Third difference

$$22 - 11 = 11$$

$$44 - 22 = 22$$

$$88 \times 2 = 176$$

$$176 + 178 = 354$$

So the answer is 354

5- 4, _____, 144, 400, 900, 1764

$$2^2 = 4$$

$$2+4 = 6^2 = 36$$

$$6+6 = 12^2 = 144$$

$$12+8 = 20^2 = 400$$

$$20+10 = 30^2 = 900$$

$$30+12 = 42^2 = 1764$$

So, the missing number is 36

Part D.

$$A : B = 1 : 2 = \frac{A}{B} = \frac{1}{2}$$

$$B : C = 3 : 2 = \frac{B}{C} = \frac{3}{2}$$

$$C : D = 3 : 4 = \frac{C}{D} = \frac{3}{4}$$

difference in share of A : D = 2240

Share of B = ?

$$\frac{A}{B} : \frac{B}{C} = \frac{1}{2} : \frac{3}{2}$$

$$\text{The ratio of A and B} = 1 : 2 = \frac{1}{2} \times \frac{9}{9} = \frac{9}{18}$$

$$\text{The ratio of B and C} = 3 : 2 = \frac{3}{2} \times \frac{6}{6} = \frac{18}{12}$$

$$\text{The ratio of C and D} = \frac{3}{4} \times \frac{4}{4} = \frac{12}{16}$$

$$\text{So, } A:B:C:D = 9:18:12:16$$

Let's assume that x is the share.

$$A = 9x$$

$$B = 18x$$

$$C = 12x$$

$$D = 16x$$

So, the difference between A and D's share is 2240.

$$16x - 9x = 2240$$

$$7x = 2240$$

$$x = \frac{2240}{7}$$

$$x = 320$$

$$B's \text{ share} = 18x$$

$$= 18 \times 320$$

$$= 5760$$

Now, the answer is 5760, and B's share is Rs. 5760.