

Date: 21-09-2023

GSA Mock 6

GK 1

Section II

Q.6. (a) (i) Identify the series

$$10, 100, 200, 310, 430$$

$\underbrace{\quad}_{+90}$ $\underbrace{\quad}_{+100}$ $\underbrace{\quad}_{+110}$ $\underbrace{\quad}_{+120}$

Answer = 430

Reason: The difference between first two terms is 90 and it increases by +10 in the next terms. So after 310, +120 has to be added :-

$$310 + 120 = 430$$

(ii) Identify the series

$$3, 7, 23, 95, 479$$

$(P \times n) + 1$ $(P \times n) + 2$ $(P \times n) + 3$ $(P \times n) + 4$

Answer = 479

Reason: Every term is multiplied by the position of the next term one less than and added according to the new position in the series. So, 95 will be multiplied by the 5th position and added to 4 :-

$$95 \times 5 = 475$$

$$475 + 4 = 479$$

2

Date: _____

Q6(b) $(3x-y)$ cm \rightarrow side 1 \rightarrow Length

$(2x-3)$ cm \rightarrow side 2 \rightarrow Width

$(2x+y)$ cm \rightarrow side 3 \rightarrow Length

Perimeter = 114 cm

Let side 4 be equal to side 2 as both are width

$(2x-3)$ cm \rightarrow side 4 \rightarrow Width

$$114 = (3x-y) + (2x-3) + (2x+y) + (2x-3)$$

$$114 = 3x - y + 2x - 3 + 2x + y + 2x - 3$$

$$114 = 9x - 6$$

$$114 + 6 = 9x$$

$$\frac{120}{9} = x$$

$$x = \frac{40}{3}$$

$$\frac{40}{3} = x \rightarrow \text{eq (1)}$$

Since both lengths are equal

$$(3x-y) = (2x+y)$$

$$3x - y = 2x + y$$

$$x = 2y \rightarrow \text{eq (2)}$$

Put eq (1) in eq (2)

$$\frac{40}{3} = 2y$$

$$\frac{40}{3 \times 2} = y \Rightarrow y = \frac{20}{3}$$

Date: _____

Q6 (b) Continued

$$x = \frac{40}{3}, y = \frac{20}{3}$$

Area of rectangle = Length x Width

$$= (3x - y) \times (2x - 3)$$

$$= \left(3 \times \left(\frac{40}{3} \right) - \frac{20}{3} \right) \times \left(2 \left(\frac{40}{3} \right) - 3 \right)$$

$$= \left(\frac{40 - 20}{3} \right) \times \left(\frac{80 - 9}{3} \right)$$

$$= \left(\frac{120 - 20}{3} \right) \times \left(\frac{80 - 9}{3} \right)$$

$$= \frac{100}{3} \times \frac{71}{3}$$

$$\text{Area} = \frac{7100}{9} \text{ cm}^2$$

Q6 (c) Current Age

$$\text{Nisha} = 15 + x$$

$$\text{Let Romi} = x$$

Five years ago (Age)

$$\text{Romi} = x - 5$$

4

Date: _____

$$\text{Nisha} = 3((x-5)+15) = 3(x-10)$$

$$3x - 30$$

$$\text{Nisha} = (x+15) - 5 = x+10$$

$$x+10 = 3(x-5)$$

$$x+10 = 3x-15$$

$$25 = 2x$$

$$x = 12.5 \text{ years}$$

$$\text{Age of Romi} = 12.5 \text{ years}$$

$$\text{Age of Nisha} = 12.5 + 15 = 27.5 \text{ years}$$

Q6	210 Oranges	2	210, 252, 294
	252 Apples	3	105, 126, 147
	294 pears	7	35, 42, 49
			5, 6, 7

$$\text{HCF} = 2 \times 3 \times 7$$

$$= 6 \times 7$$

$$= 42$$

Taking the Highest Common Factor (HCF)

we get 42 cartons as the biggest

number of cartons needed.

Q7. Percentage increase = 20%

percentage decrease = 20%

Let the original price be = x

Date: _____

Price is = Rs 80 high

$$\begin{aligned} \text{Actual Charged price} &= 80\% \text{ of } x \\ &= 0.8x \end{aligned}$$

$$\begin{aligned} \text{Actual Charged price} &= 120\% \text{ of } x \\ &= 1.2x \end{aligned}$$

Difference costed = Rs. 80 high

$$1.2x - 0.8x = 80$$

$$0.4x = 80$$

$$x = \frac{80 \times 100}{4} \quad \frac{4}{10} x = 80$$

$$x = \frac{80 \times 10}{4}$$

$$x = 200$$

Original price = Rs. 200

Q7 (b) A B C D E F G H I J K L M N O P Q R
S T U V W X Y Z

BROTHER SISTER
~~Q D E S N Q A~~

Key = B = A, R = Q, O = N, T = S, H = G, E = D
 -1 -1 -1 -1 -1 -1

6

Date: _____

Since the coded series starts backwards with a -1 approach we can apply it again:-

$$\begin{array}{cccccc} S=R & , & I=H & , & S=R & , & T=S & , & E=D & , & R=Q \\ -1 & & -1 & & -1 & & -1 & & -1 & & -1 \end{array}$$

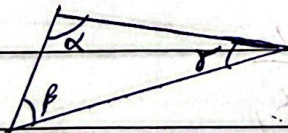
S I S T E R

Ans = Q D S R H R

(c) A Define and Draw

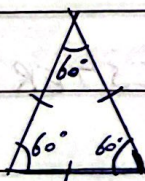
(i) Scalene Triangle:-

A scalene triangle is a triangle having all angles of different degree. This leads to it having different lengths of all sides.



(ii) Equilateral Triangle:-

All angles of an equilateral triangle are equal which makes them 60° each. This results in same length of all the sides.



Date: _____

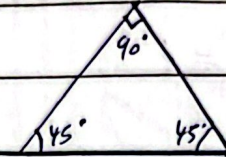
7

(iii) Isoceles and Right

Isoceles triangle has 2 sides equal in length which results in equal angles of 2 sides.

Right angle triangle has one side of 90°

$$45^\circ + 45^\circ + 90^\circ = 180^\circ$$



Q7 (a) Total sizes = 8

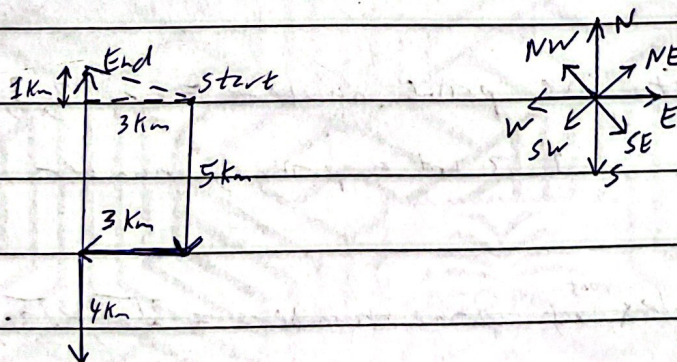
sizes with reason = 3

Probability of size with reason = $\frac{3}{8}$

As Probability = $\frac{\text{Desired outcome}}{\text{Total outcomes}}$

Q8 (a)

Key:-

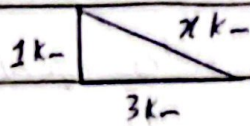


Ans = He is to the left of the starting position.

North West according to compass

8

Date: _____



$$(1)^2 + (3)^2 = x^2$$

$$1 + 9 = x^2$$

$$10 = x^2$$

~~$$\sqrt{x} = x$$~~

$$\sqrt{10} = x$$

He is $\sqrt{10}$ km away from starting point

Q8(b) First five prime numbers = ~~2, 3, 5, 7, 11, 13~~

~~$$\text{Sum} = 2 + 3 + 5 + 7 + 11 + 13 = 39$$~~

~~1 is not a prime no.~~

$$\begin{array}{r} 649 \\ \times 7 \\ \hline 353 \end{array}$$

~~$$\text{Arithmetic mean} = \frac{39}{5} = 7\frac{4}{5}$$~~

$$\begin{array}{r} 11 \\ \times 11 \\ \hline 121 \\ \times 11 \\ \hline 121 \\ + 121 \times \\ \hline 1331 \end{array}$$

$$\begin{array}{r} 7 \\ 5 \overline{) 39} \\ \underline{-35} \\ 4 \end{array}$$

Q8(b) First five prime numbers = 2, 3, 5, 7, 11, 13

1 is not a primary number

~~$$\text{Cubes}^{\text{root}} \text{ of prime numbers} = \sqrt[3]{2}, \sqrt[3]{3}, \sqrt[3]{5}, \sqrt[3]{7}, \sqrt[3]{11}$$~~

$$\begin{aligned} \text{Cubes of prime numbers} &= (2)^3, (3)^3, (5)^3, (7)^3, (11)^3 \\ &= 8, 27, 125, 343, 1331 \end{aligned}$$

Date: _____

$$\text{Sum} = 8 + 27 + 125 + 343 + 1331$$

$$= 160 + 1674$$

$$= 1834$$

$$\text{Arithmetic Mean} = \frac{1834}{5} = 366\frac{4}{5}$$

Rough work

$$1674$$

$$+ 160$$

$$1834$$

$$\begin{array}{r} 366 \\ 5 \overline{) 1834} \end{array}$$

$$\begin{array}{r} -15 \\ \hline \times 334 \end{array}$$

$$\begin{array}{r} -30 \\ \hline \times 34 \end{array}$$

$$\begin{array}{r} -30 \\ \hline \times 7 \end{array}$$

Q8(d)

Men	Road (km)	Days
50	20	40
70	20	x

$$x = \frac{20}{70} \times 50$$

$$40 \quad 20 \quad 70$$

$$\begin{array}{r} 28 \\ 7 \overline{) 200} \end{array}$$

$$\begin{array}{r} -14 \\ \hline \times 80 \end{array}$$

$$\begin{array}{r} -56 \\ \hline \times 7 \end{array}$$

$$x = \frac{40 \times 5}{7} = \frac{200}{7} = 28\frac{4}{7} \text{ days}$$

Q9(d)

Zahid's money = Rs 1750000

Debt = Rs. 150000

$$\text{Remaining} = 1750000 - 150000$$

$$= 1600000$$

$$\text{Shares} = 2 \text{ son} + 1 = 3$$

Son = 2 shares, Daughter = 1 share

10

Date: _____

$$\text{Son} = \frac{2}{3} \times 1600000 = \underline{3200000}$$

$$\text{Daughter} = \frac{1}{3} \times 1600000 = \underline{1600000}$$