

Write complete logic and steps  
 Work on paper presentation  
 Work on theory portion

28-11-23

①

Given data: Total length of fence = 300 ft  
 let the short side of fence =  $x$   
 longer " " =  $4x$ .

Sol:-

$$4x + x = 300$$

$$5x = 300$$

$$x = 60$$

shorter side piece = 60 ft  
 longer piece =  $4x = 240$  ft

(b)

Given  $P = 20$  inches.

let  $w = x$

Acc to given condition  $l = 3x + (2x) = 3 + 2x$

dimensions =  $l$  &  $w = ?$

Sol:-

As, Perimeter of rectangle =  $2(l+w)$

$$20 = 2(3 + 2x + x)$$

$$20 = 2(3 + 3x)$$

$$10 = 3 + 3x$$

$$x = \frac{10}{3}$$

$$20 = 2(3 + 2x + x)$$

$$20 = 2(3 + 3x)$$

$$10 = 3 + 3x$$

$$7 = 3x$$

$$x = \frac{7}{3}$$

hence, width =  $\frac{7}{3}$  inches

$$l = 3 + 2x = 3 + 2\left(\frac{7}{3}\right) = 3 + \frac{14}{3} = \frac{23}{3}$$

$$l = \frac{23}{3} \text{ inches}$$

(2)

(c) Given:- won cricket team 60% of total matches during year

lost = 24 matches

Drawn = No match.

Find:- No. of matches played during year = ?

Sol:-

Let No. of matches played during year =  $x$

Won matches = 60% of  $x$   
 $= 0.6x$

% of lost matches =  $1x - 0.6x$   
 $= 0.4x$

As, No. of matches lost = 24

then,  
 $24 = 0.4x$   
 $24 \times \frac{10}{4} = x$   
 $x = 60$

rough  
 $0.4x = 24$   
 $x = \frac{24 \times 10}{4}$   
 $x = 60$   
 $\frac{24}{4} = 6$   
 $6 \times 10 = 60$

hence,

60 total matches played per during year ans

(d)

Let two numbers are -  $x : y$

Ratio of 2 numbers = 3 : 2

acc to condition

$$3x + 2 : 2y + 6 :: 4 : 5$$

$$\frac{3x + 2}{2y + 6} = \frac{4}{5}$$

$$\frac{3x + 2}{2y + 6} = \frac{4}{5}$$

Acc to 1st condition  $\frac{x}{y} = \frac{3}{2} \rightarrow$  (A)

4 4 2<sup>nd</sup> "  $\frac{3x + 2}{2y + 6} = \frac{4}{5} \rightarrow$  (B)



soln (A)  $\frac{x}{y} = \frac{3}{2}$   
 $x = \frac{3}{2}y$

soln (B) put  $x = \frac{3}{2}y$  in (B)

$$\frac{3\left(\frac{3}{2}y\right) + 2}{2y + 6} = \frac{4}{5}$$

$$\left(\frac{9}{2}y + 2\right)5 = 4(2y + 6)$$

$$\frac{9y + 4}{2} \times 5 = 8y + 24$$

$$45y + 20 = 16y + 48$$

$$(45 - 16)y = 48 - 20$$

$$29y = 28$$

$$y = \frac{28}{29}$$

then

$$x = \frac{3}{2}y = \frac{3}{2} \left(\frac{28}{29}\right) = \frac{42}{29}$$

$$\boxed{x = \frac{42}{29}, y = \frac{28}{29} \text{ ans}}$$

③ (15)  
 $\frac{45}{16}$   
 $\frac{16}{29}$

rough  
 $\frac{x}{y} = \frac{3}{2}$   
 $\frac{42 \times 29}{29 \times 28} = \frac{3}{2}$   
 $\frac{21}{14}$

Q7

(a)

hall total no. of seats = 400

& occupied = 325

% of occupied seats = ?

$$\% \text{ of attendance (occupied)} = \frac{325 \times 100}{400}$$

$$= \frac{325}{4} = 81.2\%$$

$$4 \overline{) 325} \\ \underline{324} \\ 10$$

hence

$$\boxed{\% \text{ of attendance} = 81.2\%}$$

D) Given Person : sugar (kg) : days

$$\begin{array}{ccc} \uparrow 30 & : \uparrow 40 & : 10 \uparrow \\ \uparrow 80 & : \uparrow 320 & : x \uparrow \end{array}$$

$$\frac{30 \times 40 \times 10}{80 \times 320 \times x}$$

14

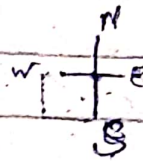
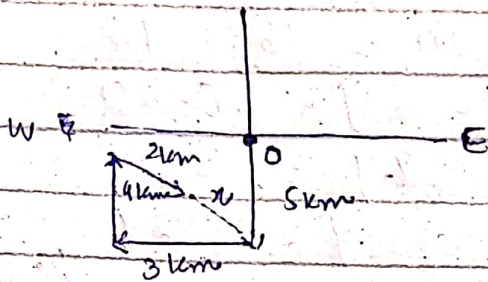
$$\frac{80}{30} \times \frac{32}{40} = \frac{x}{10}$$

$$\frac{64}{3} \times 10 = x$$

$$x = 213.3$$

$$3 \overline{) 640} \\ \underline{63} \\ 10$$

e)



Acc to fig

pythagoras theorem

$$(x+2)^2 = (4)^2 + (3)^2$$

$$x^2 + 4 + 4x = 16 + 9$$

$$x^2 + 4x = 25 - 4 \rightarrow x^2 + 4x = 21$$

$$x^2 + 4x - 21 = 0$$

$$x^2 - 7x + 3x - 21 = 0$$

$$x(x-7) + 3(x-7) = 0$$

$$(x-7)(x+3) = 0$$

$$x = 7 \quad x + 3 = 0$$

$$x = 7 \quad x = -3$$

as, distance cannot be negative so,

$$x = 7 \text{ km}$$

d)

radius of cylinder = 10cm

h = 36cm

Vol = ?

$$V = \frac{1}{3} \pi r^2 h = \frac{22}{7} \times (10)^2 \times 36 \\ = 22 \times 100 \times 36$$



$$= \frac{22}{7} \times 100 \times 36 = \frac{2200}{7} \times 36 = 11314.4$$

$$\begin{array}{r} 2200 \\ 336 \\ \hline 13200 \\ 66000 \\ \hline 79200 \end{array}$$

$$V = 11314.4 \text{ cm}^3$$

Q2. (a)

BROTHER → Q D S N Q A

SISTER → ?

Sol

B R O T H E R  
 ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓  
 Q D S N Q A

Write complete logic and steps

B R O T H E R → Q D S N Q A

S I S T E R → Q A

S I S T E R → Q D S R H R

So, SISTER will be written as Q D S R H R

Rough

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

(b)

cards No. = 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

Find  $n(P|E) = \frac{8}{12} = \frac{2}{3}$   $n(P|O) = \text{negative no.}$   
 $n(P|E) = \text{even no.} = ?$   $n(P|E) = \text{No. less than } 13$   
 $n(P|E) = \text{perfect sq.} = ?$

Sol:- (i)  $P(E) = \frac{n(P)}{P(S)} = \frac{1}{12}$

(ii)  $n(P) = \frac{P(E)}{P(S)} = \frac{1}{12} \times 12 = 1$

as even no. are {2, 4, 6, 8, 10, 12} so,

(iii) Perfect sq:  $\{4, 9\}$

so,  $n(P) = \frac{P(E)}{P(S)} = \frac{2}{12} = \frac{1}{6}$

(iv) As, there is no negative no. so

$n(P) = \frac{P(E)}{P(S)} = \frac{0}{12} = 0$

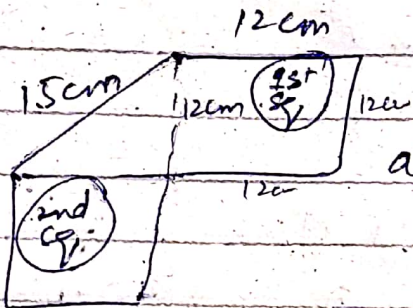
(v)

As,  $\{1, 2, 3, \dots, 12\}$  are less than 13

so,

$n(P) = \frac{12}{12} = 1$

(c)



total area & perimeter = ?

as, there are 2 sq + 1 triangle

Area of square =  $A = l^2 = (12)^2 = 144 \text{ cm}^2$

Area of triangle =  $\frac{1}{2} \times b \times h$

so,

by pythagoras theorem

$(15)^2 = (12)^2 + x^2$

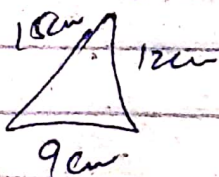
$225 = 144 + x^2$

$225 - 144 = x^2$

$\sqrt{81} = \sqrt{x^2}$

$x = 9$

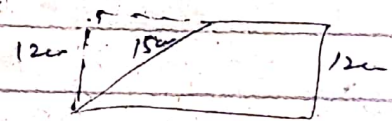
so,



Area of triangle =  $\frac{1}{2} \times 9 \times 12$

Area =  $54 \text{ cm}^2$

rough



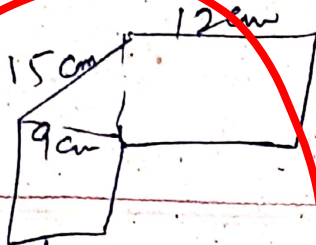
$(15)^2 = (12)^2 + x^2$

$\sqrt{369} = \sqrt{x^2}$

$\begin{array}{r} 3 \overline{) 369} \\ \underline{3 \phantom{00}} \\ 0 \phantom{00} \\ \underline{3 \phantom{00}} \\ 0 \phantom{00} \end{array}$	$\begin{array}{r} 2 \overline{) 369} \\ \underline{2 \phantom{00}} \\ 1 \phantom{00} \\ \underline{1 \phantom{00}} \\ 0 \phantom{00} \end{array}$
$\begin{array}{r} 123 \\ \underline{123} \\ 0 \end{array}$	$\begin{array}{r} 15 \\ \underline{15} \\ 0 \end{array}$



Now,



Area of 2nd square =  $(9)^2 = 81 \text{ cm}^2$

Hence,

total area = 2 square + 1 triangle

$= 81 + 144 + 54$

$= 279$

\* Total area = 279 cm<sup>2</sup>

$$\begin{array}{r} 144 \\ 54 \\ \hline 81 \\ \hline 279 \end{array}$$

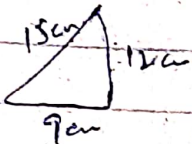
Perimeter of 1st sq =  $(12) \times 4 = 48 \text{ cm}$

∴ 2nd =  $4 \times 9 = 36 \text{ cm}$

∴ triangle =  $(12 + 9 + 15) \text{ cm}$

$= 36 \text{ cm}$

$$\begin{array}{r} 15 \\ 12 \\ 9 \\ \hline 36 \end{array}$$



hence,

total perimeter =  $36 + 36 + 48$

\* total perimeter = 120 cm

(d) Nine students

15, 15, 16, 16, 16, 17, 17, 18, 19

Q8

Mode = 16

mean =  $\frac{15 + 15 + 16 + 16 + 16 + 17 + 17 + 18 + 19}{9}$

Mean =  $\frac{149}{9} = 16.5$

Median = as, data is odd in number so,

15, 15, 16, 16, 16, 17, 17, 18, 19

Median = 16

Range = 19 - 15 = 4

$$\begin{array}{r} 37 \\ 30 \\ 40 \\ 34 \\ \hline 119 \\ 16 \\ 48 \\ 18 \\ 15 \\ \hline 37 \end{array}$$

(6)