

Q6 (a) Bushra Ameen

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

Sol:-

$$4x + x = 300$$

$$5x = 300$$

$$\boxed{x = 60}$$

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

(b)

Given $P = 20$ inches.

let let $w = x$

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

dimensions = l & $w = ?$

Sol:-

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

$$20 = 2(l+w)$$

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

$$10 = 7x$$

$$\boxed{x = 10/7}$$

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

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

$$10 = 3 + 3x$$

$$7 = 3x$$

$$\boxed{7/3 = x}$$

hence, $\boxed{\text{width} = 7/3 \text{ inches}}$

$$l = 3 + 2x = 3 + 2\left(\frac{7}{3}\right) = \frac{9+14}{3} = \frac{23}{3}$$

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

(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 = $60\% \times x$
 $= 0.6x$

% 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
 $0.4x = 24$
 $x = \frac{24 \times 10}{4}$
 $x = 60$
 $\frac{60}{36}$

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

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

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

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

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

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

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

Step (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 = ?

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

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

hence

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

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

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

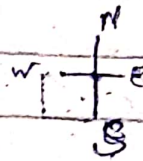
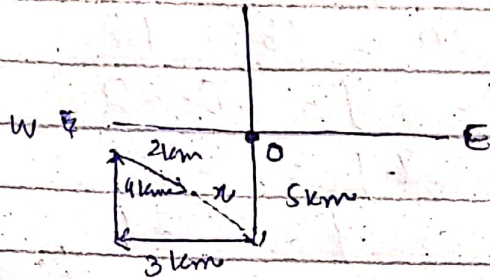
$$\frac{80}{30} \times \frac{320}{40} = \frac{x}{10}$$

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

$$x = 213.3$$

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

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 = 10 cm

h = 36 cm

Vol = ?

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

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

$$= \frac{79200}{7} = 11314.4$$

$$\begin{array}{r} 2200 \\ 36 \\ \hline 13200 \\ 66000 \\ \hline 79200 \end{array}$$

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

Q2. (a)

BROTHER \rightarrow Q D S N Q A

SISTER \rightarrow ?

So

B R O T H E R
 $\downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow$
 Q D S N Q A

B R O T H E R \rightarrow Q D S N Q A

S I S T E R \rightarrow Q A

S I S T E R \rightarrow 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
			K	L
F	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 $n(P(E)) = 8$ (No. is) $= ?$ $n(P(O)) = \text{negative no.}$
 $n(P(X)) = \text{even No.}$ $= ?$ $n(P(Y)) = \text{No. less than}$
 $n(P(Z)) = \text{perfect sq.}$ $= ?$ 13

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

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

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

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

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

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

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

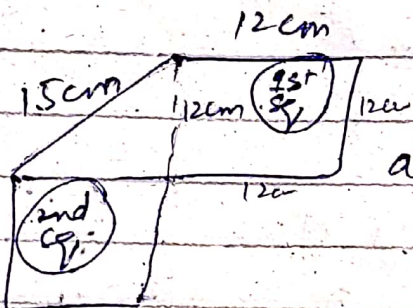
(v)

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

so,

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

(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

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

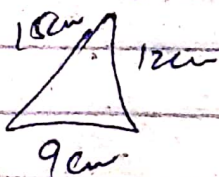
$225 = 144 + x^2$

$225 - 144 = x^2$

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

$x = 9$

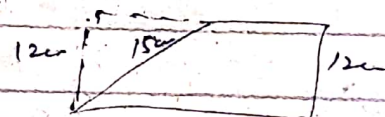
so,



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

Area = 54 cm^2

rough



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

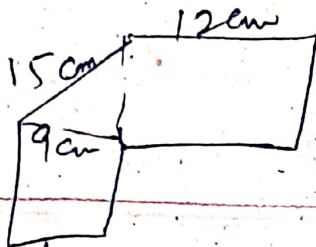
$\sqrt{369} = \sqrt{x^2}$

$$\begin{array}{r} 3 \overline{) 369} \\ \underline{3} \\ 0 \\ \underline{3} \\ 0 \\ \underline{0} \\ 0 \end{array}$$

$$\begin{array}{r} 123 \\ \underline{123} \\ 0 \\ \underline{0} \\ 0 \\ \underline{0} \\ 0 \end{array}$$

$$\begin{array}{r} 15 \\ \underline{15} \\ 0 \\ \underline{0} \\ 0 \\ \underline{0} \\ 0 \\ \underline{0} \\ 0 \end{array}$$

Now,



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

Hence,

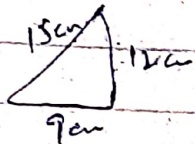
total area = 2 square + 1 triangle
 $= 81 + 144 + 54$

* $\boxed{\text{Total area} = 279 \text{ cm}^2}$

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

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

" " 2nd = $4l = 4 \times 9 = 36 \text{ cm}$



" " triangle = $(12 + 9 + 15) \text{ cm}$
 $= 36 \text{ cm}$

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

hence,

total perimeter = $36 + 36 + 48$

* $\boxed{\text{total perimeter} = 120 \text{ cm}}$

(d) Nine students

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

Q1

$\boxed{\text{Mode} = 16}$

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

Mean = $\frac{149}{9} = 165.5$

Median = as, data is odd in number so,

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

$\boxed{\text{Median} = 16}$

$\boxed{\text{Range} = 19 - 15 = 4}$

$$\begin{array}{r} 37 \\ 30 \\ 40 \\ 34 \\ \hline 139 \\ 16 \\ \hline 155 \\ 18 \\ \hline 173 \\ 37 \end{array}$$

(6)