

SECTION - A

Q.1] (A) 60° ✓

Q.2] (c) a segment ✓

Q.3] (c) $\frac{132}{7} \text{ cm}^2$ ✓Q.4] (B) $-2, 2$ ✓Q.5] (c) 2.3 cm ✓Q.6] (D) $\frac{1}{6}$ ✓

Q.7] (B) 2 ✓

(A) One point only ✓

(B) 5 units ✓

(D) 0 ✓

(C) $x(x+1) + 8 = (x+2)(x-2)$ ✓

(D) more than 3 ✓

(C) 424.5 ✓

(A) 8 ✓

(D) 20° ✓

(B) $\frac{5}{3}$ ✓

Q.17]

(A) (B) (-3, 0)

Q.18]

$$(A) \frac{23}{3}$$

Q.19]

(D) Assertion (A) is false, but Reason (R) is true

Q.20]

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

SECTION - B

Q21] Given, $5 \sin^2 60^\circ + 3 \cos^2 30^\circ - \sec^2 45^\circ$

[Substituting with all the appropriate values.]

* $\sin 60^\circ = \sqrt{3}/2$; $\cos 30^\circ = \sqrt{3}/2$ and $\sec 45^\circ = \sqrt{2}$

$$\rightarrow 5 \left(\sqrt{3}/2\right)^2 + 3 \left(\sqrt{3}/2\right)^2 - (\sqrt{2})^2$$

$$\rightarrow 5 \left(3/4\right) + 3 \left(3/4\right) - 2$$

$$\rightarrow \frac{15}{4} + \frac{9}{4} - 2$$

$$\rightarrow \frac{24}{4} - 2$$

$$\rightarrow 6 - 2$$

$$\rightarrow \underline{\underline{4}}$$

∴ After evaluating " $5 \sin^2 60^\circ + 3 \cos^2 30^\circ - \sec^2 45^\circ$ ", we obtain '4'.

Q. 7 (a) Given polynomial, $8x^2 + 14x + 3$
 [It is written in the form $ax^2 + bx + c = 0$]
 So, $a = 8$; $b = 14$ and $c = 3$

Now, we know that

$$\rightarrow \alpha + \beta = \frac{-b}{a} = \frac{-(14)}{8} = \frac{-14}{8} = \frac{-7}{4} \text{ --- eq (1)}$$

$$\rightarrow \alpha \cdot \beta = \frac{c}{a} = \frac{3}{8} \text{ --- eq (2)}$$

We need to find the value of $\frac{1}{\alpha} + \frac{1}{\beta}$

$\rightarrow \frac{1}{\alpha} + \frac{1}{\beta}$ can be rewritten as given below through cross multiplication

$$\rightarrow \frac{\beta + \alpha}{\alpha\beta} \text{ --- eq (3)}$$

Now, by substituting the value of ' $\alpha + \beta$ ' and ' $\alpha \times \beta$ ' from eq (1) and (2) respectively in eq (3)

We obtain,

$$\rightarrow \frac{-7}{4}$$

$$\frac{3}{8}$$

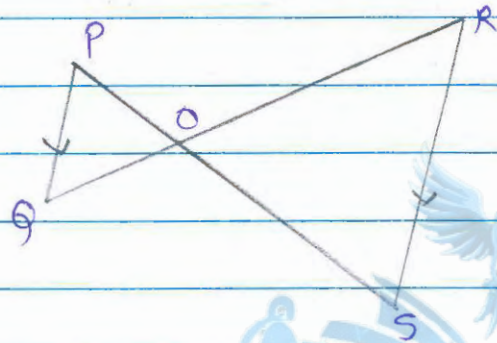
$$\rightarrow \frac{-7 \times 8}{4 \times 3}$$

$$\rightarrow \frac{-7 \times 2}{3}$$

$$\rightarrow \frac{-14}{3}$$

$\therefore \frac{1}{\alpha} + \frac{1}{\beta}$ is equal to $-14/3$.

Q.23]



Given, $\triangle OPQ$ and $\triangle OSR$ with $PQ \parallel RS$

To prove, $OP \times OR = OQ \times OS$

Proof, As $PQ \parallel RS$

So, $\angle OPQ = \angle OSR$ [Alternate interior angles]

$\angle OQP = \angle ORS$ [Alternate interior angles]

And, $\angle POQ = \angle ROS$ [Vertically opposite angles]

Now, in $\triangle OPQ$ and $\triangle OSR$

$$\begin{array}{l} \angle OPQ = \angle OSR \\ \angle OQP = \angle ORS \\ \angle POQ = \angle ROS \end{array} \left[\begin{array}{l} \text{Reason written above before} \end{array} \right]$$

By, AAA similarity criterion $\triangle OPQ \sim \triangle OSR$

$$\text{So, } \frac{OP}{OS} = \frac{PQ}{SR} = \frac{OQ}{OR} \quad [\text{By CPST}]$$

$$\rightarrow \frac{OP}{OS} = \frac{OQ}{OR}$$

$$\rightarrow \underline{OP \times OR = OQ \times OS}$$

Hence Proved

Q.2u] Given, HCF (306, 1314) = 18

To find, LCM of (306, 1314)

As we know,

product of two no. = HCF $\times$ LCM [Respective no.
must be same]

$$\rightarrow 306 \times 1314 = 18 \times \text{LCM}$$

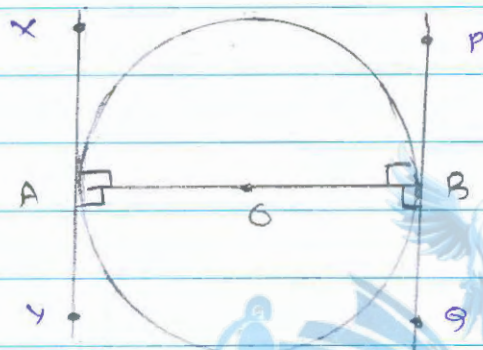
$$\rightarrow \text{LCM} = \frac{306 \times 1314}{18}$$

$$\rightarrow \text{LCM} = 17 \times 1314$$

$$\rightarrow \text{LCM} = \underline{\underline{22338}}$$

$\therefore$ LCM of (306, 1314) is equal to 22338.

Q.26]



Given, a circle with centre O and diameter AB .
Two tangents XY and PQ at ends A and B respectively.

To prove, $XY \parallel PQ$

Proof, As XY and PQ are tangents to the circle.

So, $OA \perp XY$ [Radius from the centre of a circle is
 $OB \perp PQ$ perpendicular to tangent at point of contact]

So, $\angle OAX = \angle OAY = 90^\circ$ [Perpendicular] — eq ①
 $\angle OBP = \angle OBQ = 90^\circ$ — eq ② [Perpendicular]

By comparing eq ① and ②, we get

→ $\angle OAX = \angle OBQ$ — pair 1

→ $\angle OBP = \angle OAY$ — pair 2

As pair 1 and pair 2 of angles are equal
indicating alternate interior angles are equal, thus
 $XY \parallel PQ$.

Hence Proved

SECTION - C

Q.25] Given, $\sqrt{3}$ is an irrational number

To prove, $2 + 5\sqrt{3}$ is an irrational number.

Proof, Let $2 + 5\sqrt{3}$ be a rational number

Then, we can write $2 + 5\sqrt{3}$ in form of fraction

$$\rightarrow 2 + 5\sqrt{3} = \frac{a}{b} \quad \left[\begin{array}{l} \text{Here } a \text{ and } b \text{ are co-prime integers} \\ \text{and } b \neq 0 \end{array} \right]$$

• Subtracting 2 from both the sides [L.H.S and R.H.S].

$$\rightarrow 5\sqrt{3} = \frac{a}{b} - 2$$

$$\rightarrow 5\sqrt{3} = \frac{a - 2b}{b}$$

• Dividing both sides by '5'. We get

$$\rightarrow \sqrt{3} = \frac{a-2b}{5b}$$

* As a and b are integers, thus $(a-2b)/5b$ is also a rational no. [integers] but as given, $\sqrt{3}$ is an irrational no. (in question)

∴ This contradicts with the fact.

→ Irrational $\neq$ Rational

∴ Our supposition was wrong, $2+5\sqrt{3}$ is an irrational no.

Hence Proved

Q.27] (a) Given equation,

$$2x^2 + 2x + 9 = 0$$

[It is written in the form $ax^2 + bx + c = 0$]

So, $a = 2$; $b = 2$ and $c = 9$

Now using quadratic formula [to find real roots if exist]

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \quad \text{--- eq (1)}$$

$$\rightarrow b^2 - 4ac$$

[Substituting all the appropriate values] We get,

$$\rightarrow 4 - (4)(2)(9)$$

$$\rightarrow 4 - 72$$

$$\rightarrow -68 < 0 \text{ (zero)}$$

As the value of discriminant is negative [less than 0].

∴ ~~The~~ Real roots doesn't exist for the given equation.

Q.28]

To prove,

$$\frac{1 + \sec \theta}{\sec \theta} = \frac{\sin^2 \theta}{1 - \cos \theta}$$

Proof, L.H.S. = $\frac{1 + \sec \theta}{\sec \theta}$

$$= \frac{1 + \frac{1}{\cos \theta}}{\frac{1}{\cos \theta}}$$

$$= \frac{\cos \theta + 1}{\cos \theta}$$

$$\frac{1}{\cos \theta}$$

$$= \frac{(\cos \theta + 1)(\cos \theta)}{(\cos \theta)}$$

$$= \cos \theta + 1$$

Now, R.H.S. = $\frac{\sin^2 \theta}{1 - \cos \theta}$

$$= \frac{1 - \cos^2 \theta}{1 - \cos \theta}$$

$$= \frac{(1 - \cos \theta)(1 + \cos \theta)}{(1 - \cos \theta)} \left[\begin{array}{l} \text{Using identity: } a^2 - b^2 \\ = (a+b)(a-b) \end{array} \right]$$

$$= 1 + \cos \theta$$

$$\therefore \text{L.H.S.} = \text{R.H.S.} = 1 + \cos \theta$$

Hence Proved

Q.29]

Given, Deck of 52 playing cards.
From that deck black queens and red kings are removed.

[No. of black queens = 2 ; No. of red kings = 2]

$$\begin{aligned} \text{Total no. of cards left now} &= 52 - (2+2) \\ &= 52 - 4 \\ &= \underline{\underline{48}} \end{aligned}$$

i] Probability of an ace:-

$$\text{Total no. of ace in a deck} = 4$$

Total no. of cards left = 48

$$P(\text{selected card is an ace}) = \frac{\text{Total no. of favourable outcomes}}{\text{Total no. of outcome}}$$

$$\rightarrow \frac{\text{Total no. of ace cards}}{\text{Total no. of cards}} = \frac{4}{48} = \frac{1}{12} = 0.08\bar{3}$$

∴ Probability for the selected card to be an ace is $\frac{1}{12}$ OR $0.08\bar{3}$.

ii) Probability of a jack of red colour.

$$P(\text{selected card is a jack of red colour}) = \frac{\text{Total no. of red jack}^{\text{cards}}}{\text{Total no. of cards}}$$

Total no. of jack of red colour = 2

$$\text{So, } \rightarrow \frac{2}{48} = \frac{1}{24} = 0.041\bar{6}$$

∴ The probability of a selected card to be a 'jack of red colour' is ' $1/24$ ' OR ' $0.041\bar{6}$ '.

(iii) a king of spade-

Total no. of king of spade = 1

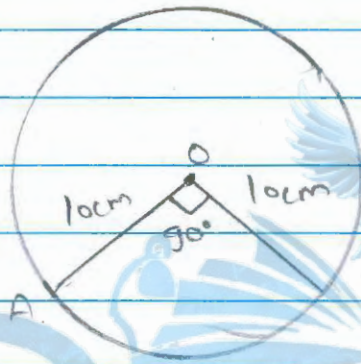
Total no. of cards = 48

$$P(\text{a king of spade}) = \frac{\text{Total no. of king of spade}}{\text{Total no. of cards}}$$

$$= \frac{1}{48} = 0.0208\bar{3}$$

∴ Probability of a king of spade card to be selected is ' $0.0208\bar{3}$ ' OR ' $1/48$ '.

Q.30]



Given, a circle with centre O and radius 10cm, Subtends 90° at centre.
 So, $\theta = 90^\circ$

To find, Area of minor sector and area of major sector

$$\begin{aligned}
 \text{Area of minor sector} &= \frac{\theta}{360^\circ} \times \pi r^2 \\
 &= \frac{90^\circ}{360^\circ} \times 3.14 \times (10)^2 \\
 &= \frac{1}{4} \times 3.14 \times 100 \\
 &= \frac{1}{4} \times 314
 \end{aligned}$$

$$= \left(\frac{314}{4} \right) \text{ cm}^2$$

$$= \underline{\underline{78.5 \text{ cm}^2}}$$

∴ The area of minor sector is '78.5 cm²'

Now, area of major sector = ~~θ~~ × ~~360~~

$$= \frac{(360^\circ - \theta)}{360^\circ} \times \pi r^2$$

$$= \frac{(360^\circ - 90^\circ)}{360^\circ} \times 3.14 \times (10)^2$$

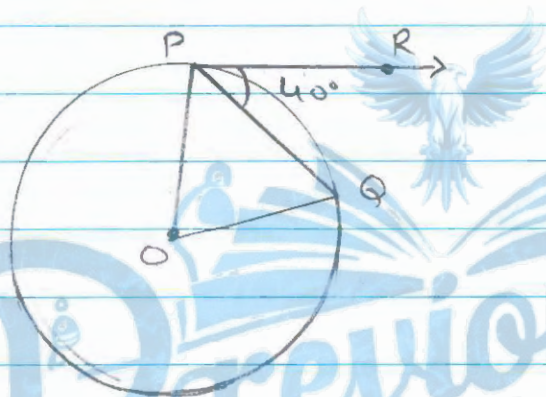
$$= \frac{270^\circ}{360^\circ} \times 3.14 \times 100$$

$$= \frac{3}{4} \times 314$$

$$= 3 \times 78.5 \longrightarrow \underline{\underline{235.5 \text{ cm}^2}}$$

∴ The area of major sector is '235.5 cm²'.

Q.31] (b)



Given, a circle with centre O and $\angle RPQ = 40^\circ$ with PR as a tangent.

To find, $\angle POQ = ?$

As, PR is ~~a tangent~~ to circle.

So, $OP \perp PR$ [The radius of circle is perpendicular to the tangent at the point of contact]

So, $\angle OPR = 90^\circ$

Now, $\angle OPR = \angle OPQ + \angle QPR = 90^\circ$

$\rightarrow \angle OPQ + \angle QPR = 90^\circ$

$\rightarrow \angle OPQ + 40^\circ = 90^\circ$ [$\angle QPR = 40^\circ$ is given]

$\rightarrow \angle OPQ = \underline{50^\circ}$

Also, OP and OQ are radius of a circle, so
 $OP = OQ$

Then in $\triangle OPQ$

$\angle OPQ = \angle OQP$ [Angles opposite to the equal side are equal]

So, $\angle OPQ = \angle OQP = 50^\circ$ — eq ①

Now, using angle sum property of triangle:

$\rightarrow \angle OPQ + \angle OQP + \angle POQ = 180^\circ$

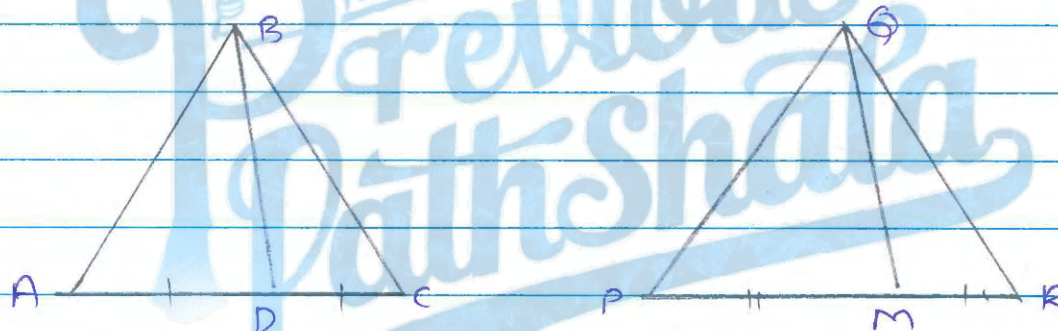
$\rightarrow 50^\circ + 50^\circ + \angle POQ = 180^\circ$ [from eq ①]

$$\rightarrow \angle POQ = \underline{\underline{80^\circ}}$$

$\therefore$ The measure of $\angle POQ$ is '80°'.

SECTION - D

Q.32]



Given, $\triangle ABC$ and $\triangle PQR$ with median BD and QM respectively

Also, $\triangle ABC \sim \triangle PQR$

To prove, $\frac{AB}{PQ} = \frac{BD}{QM}$

Proof, As BD and Gm are the medians, they will divide the AC and PR respectively in equal manner. So, $AD = DC$ AND $PM = MR$

As, $\Delta ABC \sim \Delta PQR$

$$\text{So, } \frac{AB}{PQ} = \frac{BC}{QR} = \frac{AC}{PR}$$

And, $\angle A = \angle P$; $\angle B = \angle Q$ and $\angle C = \angle R$

$\rightarrow \angle ABC = \angle PQR$; $\angle BCA = \angle QRP$ and $\angle CAB = \angle RPQ$

$$\text{Now, } \frac{AB}{PQ} = \frac{AC}{PR}$$

$$\rightarrow \frac{AB}{PQ} = \frac{\frac{1}{2}AC}{\frac{1}{2}PR}$$

$$\rightarrow \frac{AB}{PQ} = \frac{AD}{PM} \quad \left[\text{As BD and Gm are medians} \right]$$

Now in ΔABD and ΔPQM

$$\rightarrow \frac{AB}{PQ} = \frac{AD}{PM}$$

$$\rightarrow \angle BAC = \angle QPR \rightarrow \angle BAD = \angle QPM$$

So, by SAS similarity criterion, ~~$\triangle AABD$~~ and $\triangle AABD \sim \triangle PQM$

$$\text{Now, } \frac{AB}{PQ} = \frac{BD}{QM} \quad [\text{By CPST}]$$

Hence Proved.

Q.33] Given, two cubes with each volume 125 cm^3 and they are later joined end to end.

To find, Volume and surface area of newly formed cuboid.

Now, Volume of cube $= a^3 = 125 \text{ cm}^3$ [given]

So, $a^3 = 125 \text{ cm}^3$

$\rightarrow a = \sqrt[3]{125}$

$\rightarrow a = (125)^{1/3}$

$\rightarrow a = [(125)^3]^{1/3}$

$\rightarrow a = 5 \text{ cm}$

$\therefore$ The dimension ^{side of} of each of the cube is 5 cm.

Now, the surface area of resulting cuboid:-

Dimensions of the cuboid:-

Length of cuboid :- $5 \text{ cm} + 5 \text{ cm} = 10 \text{ cm}$ [as two cubes are joined]

Breadth of cuboid :- Remains same = 5 cm

Height of cuboid :- Remains same = 5 cm

Now, using

$$\text{T.S.A of cuboid} = 2(lb + bh + lh)$$

[Substituting all appropriate values]

$$\rightarrow 2[(10 \times 5) + (5 \times 5) + (10 \times 5)] \text{ cm}^2$$

$$\rightarrow 2[50 + 25 + 50] \text{ cm}^2$$

$$\rightarrow 2[125] \text{ cm}^2$$

$$\rightarrow \underline{\underline{250 \text{ cm}^2}}$$

∴ The surface area of resulting cuboid is '250 cm²'.

Now, Volume of cuboid = $l \times b \times h$

[Substituting with all appropriate values]

$$\rightarrow (10 \times 5 \times 5) \text{ cm}^3$$

$$\rightarrow \underline{\underline{250 \text{ cm}^3}}$$

∴ The Volume of resulting cuboid is also '250 cm³'.

Q.34]

Given, $S_7 = 91$ and $S_{17} = 561$

To find, Sum of first n terms $\rightarrow S_n$
 n^{th} term $\rightarrow a_n$

$S_0, S_7 = 91$

Now using, formula

$$S_n = \frac{n}{2} [2a + (n-1)d]$$

$$\begin{aligned} \rightarrow S_7 = 91 &= \frac{7}{2} [2a + (7-1)d] \\ &= \frac{7}{2} [2a + 6d] \end{aligned}$$

$$\rightarrow 91 = 7 [a + 3d]$$

$$\rightarrow 13 = a + 3d \text{ --- eq (1)}$$

$$\begin{aligned}\text{Again, } S_{17} = 561 &= \frac{17}{2} [2a + (17-1)d] \\ &= \frac{17}{2} [2a + 16d]\end{aligned}$$

$$\begin{aligned}\rightarrow 561 &= 17 [a + 8d] \\ \rightarrow 33 &= a + 8d \quad \text{--- eq (2)}\end{aligned}$$

Now, by subtracting eq (1) from eq (2),

$$\begin{aligned}\rightarrow a + 8d &= 33 \\ - a + 3d &= 13 \\ \hline 5d &= 20 \\ \boxed{d=4} &\quad \text{--- eq (3)}\end{aligned}$$

Substituting the value of 'd' or common diff. in eq (1)

$$\rightarrow a + 3d = 13$$

$$\rightarrow a + 3(4) = 13$$

$$\rightarrow \boxed{a=1} \quad \text{--- eq (4)} \quad \rightarrow \text{first term of A.P.}$$

Now, sum of first n terms:-

$$\rightarrow S_n = \frac{n}{2} [2a + (n-1)d]$$

[Substituting the values of a and d from eq (3) and (4) respectively]

$$\rightarrow S_n = \frac{n}{2} [2(1) + (n-1)(4)]$$

$$= \frac{n}{2} [2 + (n-1)(4)]$$

$$= \frac{n}{2} \times 2 [1 + (n-1)(2)]$$

$$= n [1 + 2n - 2]$$

$$= n [2n - 1]$$

$$= \underline{\underline{2n^2 - n}}$$

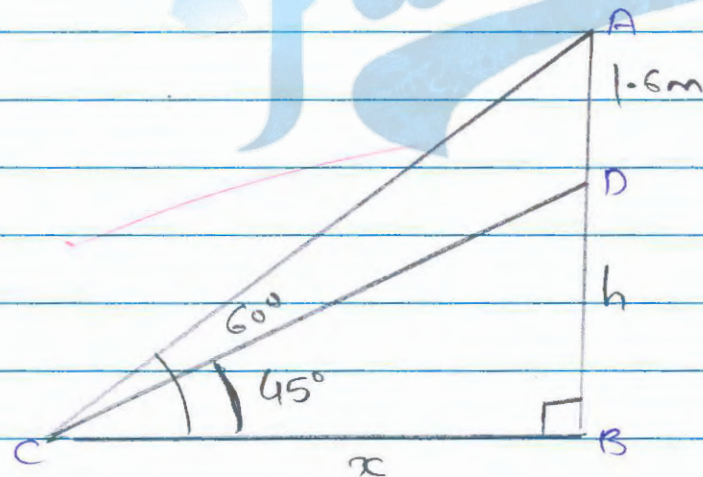
of an A.P.
 ∴ The sum of 'n' terms is ' $2n^2 - n$ ',

Now, ~~nth~~ term

$$\begin{aligned} a_n &= a + (n-1)d \\ &= 1 + (n-1)4 \\ &= 1 + 4n - 4 \\ &= \underline{\underline{4n - 3}} \end{aligned}$$

∴ ~~nth~~ term of an A.P. is ' $4n - 3$ '.

Q.357



In the given figure,

DB $\rightarrow$ pedestal

AD $\rightarrow$ Statue

C $\rightarrow$ point on the ground from where it is observed

AB $\rightarrow$ 1.6m + DB

Given, height of a statue = 1.6m = AD

angle of elevation to top of statue = 60°

angle of elevation to top of pedestal = 45°

Need to find, height of pedestal = DB = ?

Now, DB = h [let] — eq (1)

CB = x [let] — eq (2)

Now, in $\triangle DBC$

$$\tan 45^\circ = \frac{DB}{BC}$$

$$\rightarrow 1 = \frac{h}{x} \quad [\text{from eq ① and ②}]$$

$$\rightarrow \underline{x = h} \quad - \text{eq ③}$$

Now, in ΔABC

$$\tan 60^\circ = \frac{AB}{BC}$$

$$\frac{\sqrt{3}}{1} = \frac{1.6m + h}{h} \quad [\text{from eq ③ } BC = x = h]$$

$$\rightarrow \sqrt{3}h = 1.6m + h$$

$$\rightarrow \sqrt{3}h - h = 1.6m$$

$$\rightarrow h(\sqrt{3} - 1) = 1.6m$$

$$\rightarrow h = 1.6m / (\sqrt{3} - 1)$$

$$\rightarrow h = \frac{1.6}{(\sqrt{3}-1)}$$

$\rightarrow h =$ [Now rationalizing the denominator]

So, rationalizing factor = $\sqrt{3}+1$

$$\rightarrow h = \frac{(1.6) \cdot (\sqrt{3}+1)}{\cancel{(\sqrt{3}-1)}(\sqrt{3}+1)}$$

$$\begin{aligned} \rightarrow \cancel{h} &= \frac{(1.6)(\sqrt{3}+1)}{3-1} \\ &= \frac{1.6(\sqrt{3}+1)}{2} \end{aligned}$$

$$h = 0.8(\sqrt{3}+1) \text{ m}$$

$$h = 0.8(1.732+1) \text{ m} \quad [\text{Given, } \sqrt{3} = 1.732]$$

$$= (0.8)(2.732) \text{ m}$$

$$= 2.1856 \text{ m}$$

$\therefore$ Height of the pedestal [DB = h] is 2.1856 m.

SECTION- B

Q.36] (i) Given, price of notebook :- ₹x
price of pen :- ₹y

Equation $\rightarrow 3x + 2y = ₹80$ — eq①

$4x + 3y = ₹110$ — eq②

(ii) Multiplying eq① by 3 and eq② by 2, we get

$$\begin{array}{r} \rightarrow 9x + 6y = 240 \\ - 8x + 6y = 220 \\ \hline \end{array} \left[\begin{array}{l} \text{Subtracting eq① from ②, using} \\ \text{elimination method} \end{array} \right]$$

$x = 20$

$\therefore$ Price of one notebook is ₹20.

(iii) Substituting value of x in eq① $\rightarrow 3(20) + 2y = 80$

$\rightarrow 2y = 20 \rightarrow y = ₹10$

$\therefore$ The value of pen is ₹10.

Now, value of 6 notebooks + 3 pens = $6(20) + 3(10) = ₹150$

Q37] (i) Modal class of the data :- 10-15 [as it has the highest frequency]

So, upper limit of modal class = 15

(ii) Total frequency = $n = 80$
And, $n/2 = 80/2 = 40$

So Cumulative frequency higher than 40 lies in class interval 10-15.

So, median class = 10-15

Class interval	Frequency	Cumulative frequency
0-5	13	13
5-10	16	29
10-15	22	51
15-20	18	69
20-25	11	80

(iii) (a) mode of NAV of mutual funds.

modal class :- 10-15

l , lower limit :- 10

h , class size :- 5

f_1 :- 22

f_0 :- 16

f_2 :- 18

Now using,

$$\begin{aligned} \text{mode} &= \log \left(\frac{f_1 - f_0}{2f_1 - f_0 - f_2} \right) \times h \\ &= \log \left(\frac{22 - 16}{44 + 16 - 18} \right) \times 5 \\ &= \log \left(\frac{6}{42} \right) \times 5 \\ &= \log \left(\frac{1}{7} \right) \times 5 \\ &= 13 \end{aligned}$$

∴ mode NAV of mutual funds is 13.

Q.38) (i) Position of pole C:- (5, 4)

(ii) Distance of pole B(6, 6) from corner of park O(0, 0).
using distance formula:-

$$\rightarrow \sqrt{(0-6)^2 + (0-6)^2}$$

$$\rightarrow \sqrt{72}$$

$$\rightarrow \underline{6\sqrt{2} \text{ units [Distance]}}$$

(iii) (b) Distance between poles A $(2, 7)$ and C $(5, 4)$.

Using distance formula $\rightarrow \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

$$\rightarrow \sqrt{(5-2)^2 + (4-7)^2}$$

$$\rightarrow \sqrt{9+9}$$

$$\rightarrow \sqrt{18}$$

$$\rightarrow 3\sqrt{2} \text{ units}$$

$\therefore$ distance between poles A and C is $3\sqrt{2}$ units.

ROGITH WORK

$$\frac{1 + \cos \theta}{1} \rightarrow \frac{1 + \cos \theta}{1 + \cos \theta} \cdot \frac{1 + \cos \theta + 1}{\cos \theta}$$

$$\frac{1}{\cos \theta} \cdot \frac{1 + \cos \theta + 1}{\cos \theta}$$



$$40 - 25$$

$$\frac{11}{25}$$

$$\frac{1}{2} \times 5$$

$$10 + \frac{5}{2}$$

$$12.5$$

$$\begin{array}{r} 21.856 \\ \times 0.8 \\ \hline \end{array}$$

ROUGH

Work

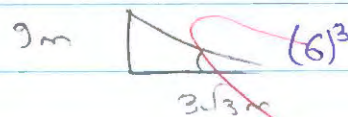
$$\begin{array}{r} 78.53 \\ \times 3 \\ \hline 235.59 \end{array}$$

$$\begin{array}{r} 2.732 \\ \times 0.8 \\ \hline 2.1856 \end{array}$$

$$\frac{1 + \sec \theta + \cos \theta}{1 + \frac{1}{\cos \theta} + \cos \theta} = \frac{\cos \theta + 1 + \cos^2 \theta}{\cos \theta}$$

$$1080 = 2^x \times 3^y \times 5^z$$

$$216 = 2^x \times 3^y$$



$$(2 \times 3)^3$$

$$25 - 16 \rightarrow 9$$

$$\frac{5 \pm 3}{2}, 1, 4$$

$$(3)^2 - 5(3) + 4$$

$$9 - 15 + 4$$

$$\rightarrow -2$$

$$x(x+1) + 8 = (x+2)(x-2)$$

$$\rightarrow x^2 + x + 8 = x^2 - 4$$

$$0_{23} - 0_{19} = 32 \rightarrow 0 + 22d - (a + 18d)$$

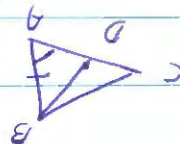
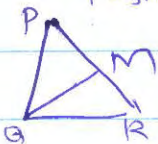
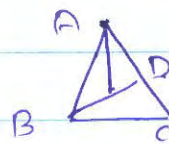
$$a + 22d - a - 18d \rightarrow 4d = 32 \rightarrow d = 8$$

$$\frac{5}{7} \neq \frac{2}{5} = \frac{5}{8}$$

$$-6/2 \quad -3, 0$$

$$1 + \frac{1}{\cos \theta} \rightarrow \frac{\cos \theta + 1}{\cos \theta}$$

$$\frac{\cos \theta}{1}$$



$$\frac{1}{7} \times \frac{22}{7} \times 36^2$$

$$\sqrt{0/4} \quad \sqrt{1/4} \quad \sqrt{2/4} \quad \sqrt{3/4} \quad \sqrt{4/4}$$

0 30° 45° 60° 90°

(1/\sqrt{2})

24

$$\begin{array}{r} 1314 \\ \times 17 \\ \hline 9198 \\ \times 13 \\ \hline 18284 \\ \hline 22338 \end{array}$$

131

$$(2, -1) \quad (-1, -5) \rightarrow \sqrt{(-1-2)^2 + (-5+1)^2}$$

$$\rightarrow \sqrt{9 + 16} = \sqrt{25} = 5$$

$$\begin{array}{r} 1314 \\ \times 306 \\ \hline 7884 \\ 394200 \\ \hline 402084 \end{array}$$

$$8x^2 + 12x + 2x + 3$$

$$4x(2x+3) + 1$$

$$(4x+1)(2x+3)$$

$$x = -\frac{1}{4} \text{ or } -\frac{3}{2}$$

$$(1 + \cos \theta)(1 - \cos \theta)$$

$$1 + \cos \theta$$

Best I