SECTION - A

Q.1] (A) 60°

Q.2] (C) a segment

Q.3] (C) $\frac{132}{7}$ cm^2

Q.4] (B) $-2, 2$

Q.5] (C) 2.3cm

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~~ the correct explanation of Assertion (A).

SECTION - B

Q.21] Given, $5\sin^2 60^\circ + 3\cos^2 30^\circ - \sec^2 45^\circ$

[Substituting with all the appropriate ~~vall~~ values.]

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

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

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

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

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

$\longrightarrow 6 - 2$

$\longrightarrow \underline{\underline{4}}$

$\therefore$ 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

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

$\rightarrow \quad \alpha . \beta = \frac{c}{a} = \frac{3}{8}$ — eq(2)

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

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

$\rightarrow \quad \frac{\beta + \alpha}{\alpha\beta}$ — eq(3)

P.T.O

[Poor quality of paper]

P.T.O

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

We obtain,

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

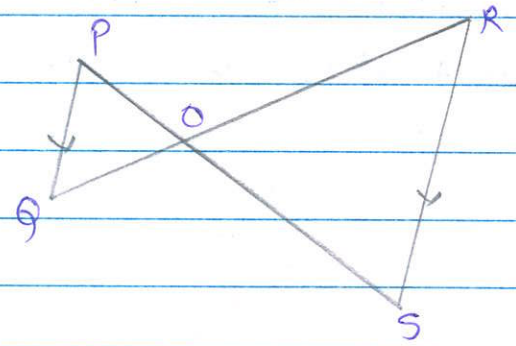
$$\rightarrow \frac{-7 \times 8}{4 \times 3}$$

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

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

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

Q.23]



Given, ΔOPQ and ΔOSR 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 ΔOPQ and $\Delta OS\cancel{Q}R$

$\angle OPQ = \angle OSR$
$\angle OQP = \angle ORS$ [Reason written ~~above~~ before]
$\angle POQ = \angle ROS$

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

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

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

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

Hence Proved

Q.24]

Given, HCF (306, 1314) = 18

To find, Lcm of (306, 1314)

As we know,

product of two no. = HCF × Lcm [Respective no. must be same]

→ 306 × 1314 = 18 × Lcm

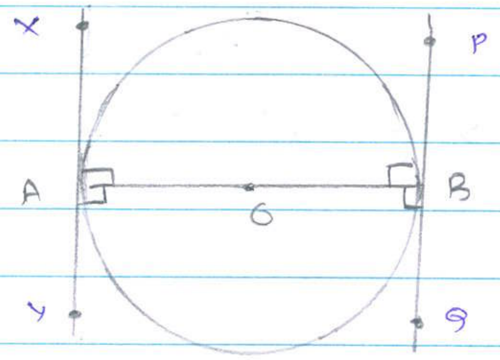
→ $Lcm = \dfrac{306 \times 1314}{18}$

→ Lcm = 17 × 1314

→ Lcm = $\underline{\underline{22338}}$

∴ Lcm of (306, 1314) is equal to 22338.

Q.25]



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

To prove, XY || 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]

~~G~~ So, $\angle OAX = \angle OAY = 90°$ [Perpendicular] — eq ①

$\angle OBP = \angle OBQ = 90°$ — 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)

→ $2+5\sqrt{3} = \frac{a}{b}$ [Here a and b are co-prime integers and $b \neq 0$.]

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

→ $5\sqrt{3} = \frac{a}{b} - 2$

→ $5\sqrt{3} = \frac{a-2b}{b}$

• Dividing both sides by '5'. We get

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

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

$\therefore$ This contradicts with the fact.

$\rightarrow$ Irrational $\neq$ Rational

$\therefore$ Our supposition was wrong, $\underline{2+5\sqrt{3}}$ is an <u>irrational</u> no.

<u>Hence Proved</u>

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]

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

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

[Substituting all the appropriate values] We get,

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

$\longrightarrow$ $4 - 72$

$\longrightarrow$ $-68 < 0$ (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. $= \dfrac{1+\sec\theta}{\sec\theta}$

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

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

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

$$= \cos\theta + 1$$

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

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

$$= \frac{\cancel{(1 - \cos\theta)}\,(1 + \cos\theta)}{\cancel{(1 - \cos\theta)}}$$ [Using identity :- $a^2 - b^2 = (a+b)(a-b)$]

$$= 1 + \cos\theta$$

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

Hence Proved

Q.29] Given, Deck of 52 playing ~~et~~ cards.
From that deck black queens and red kings are removed.

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

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

i] Probablity of an ace :-

Total no. of ace in a deck = 4

Total no. of cards left = 48

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

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

∴ Probablity for the selected card to be an ace is '1/12' OR '$0.08\overline{3}$'.

ii) Probabity of a 'jack of red colour.

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

Total no. of jack of red colour = 2

$$\text{So,} \longrightarrow \frac{2}{48} = \frac{1}{24} = 0.041\overline{6}$$

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

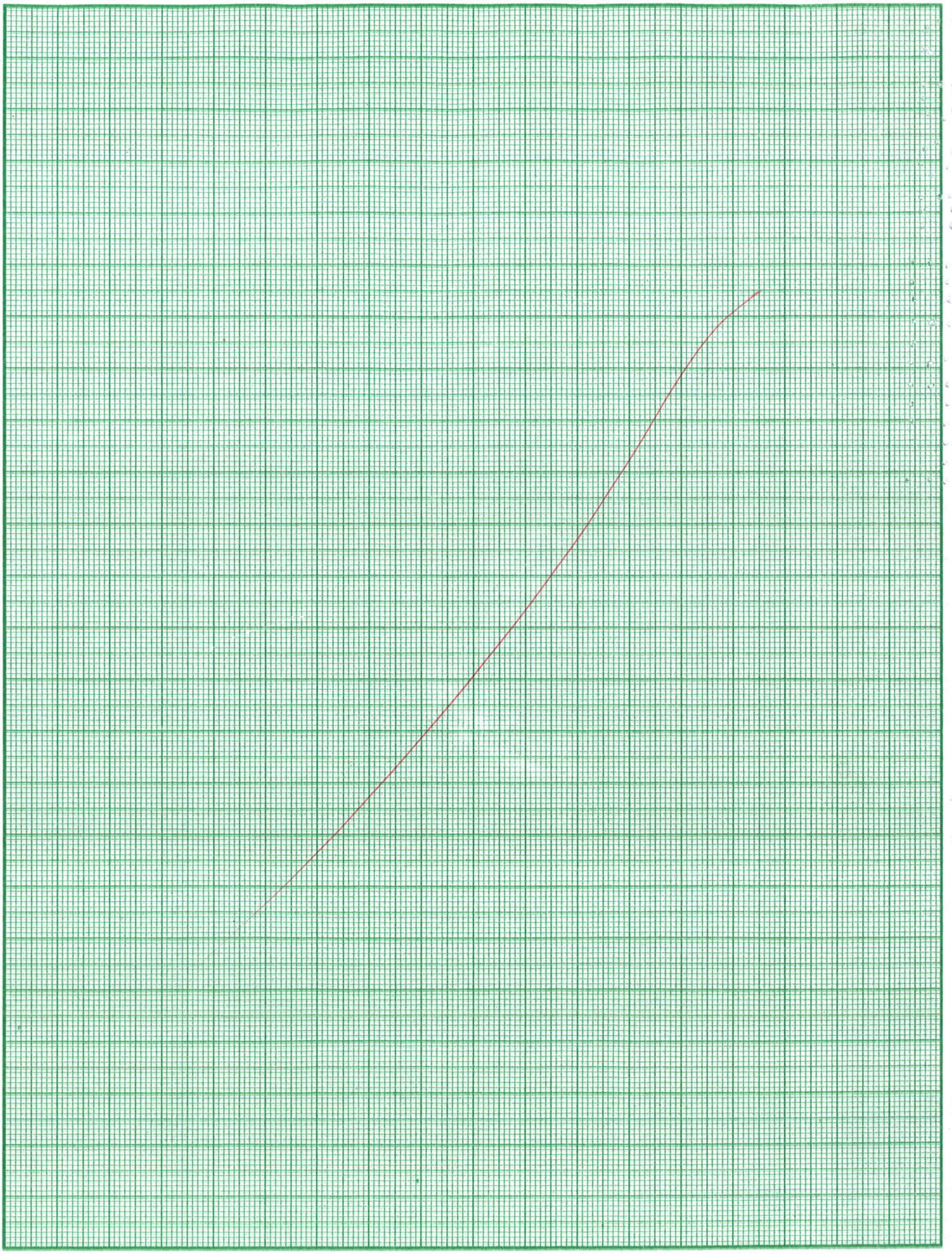
(iii) a king of spade:-

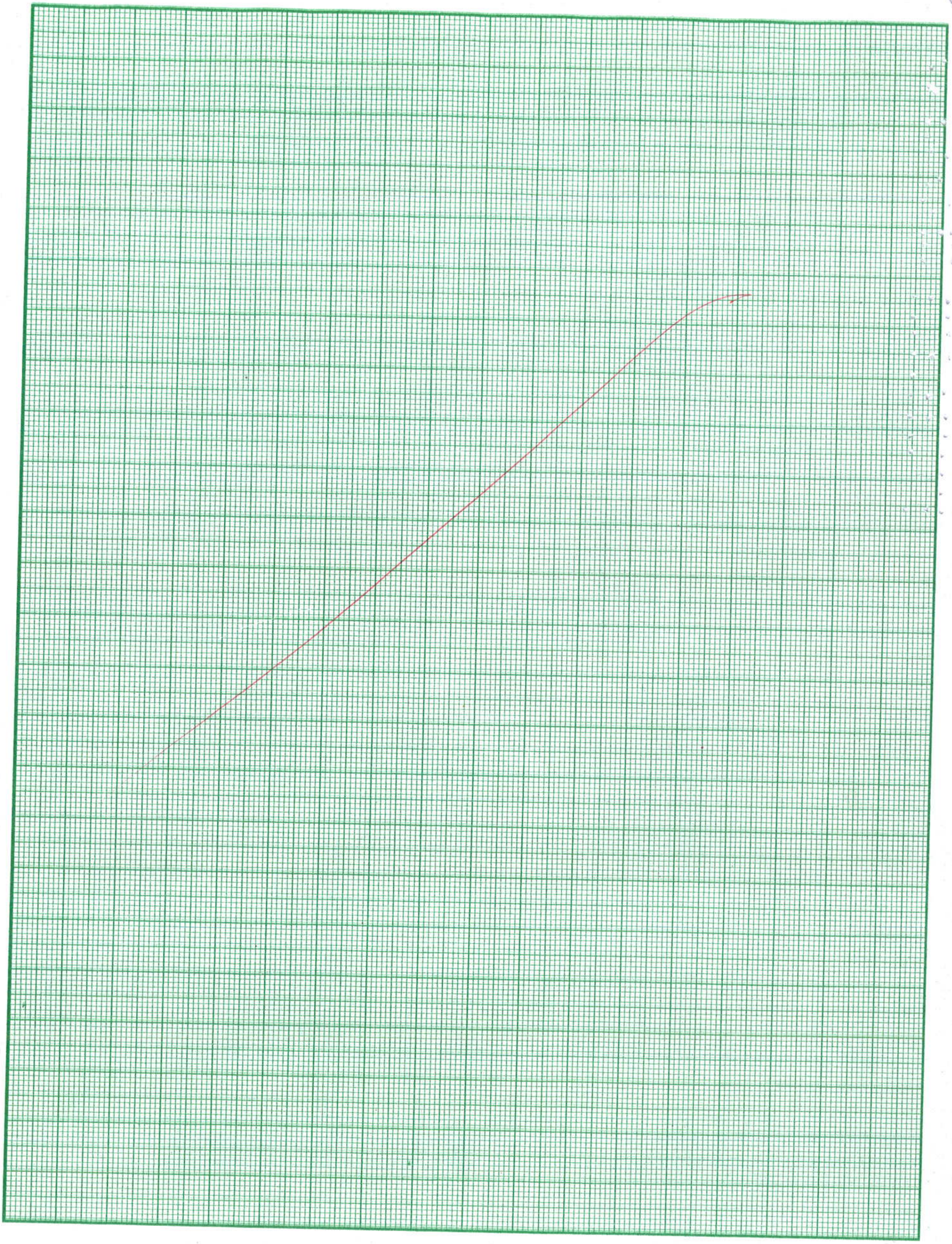
Total no. of king of spade = 1
Total no. of cards = 48

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

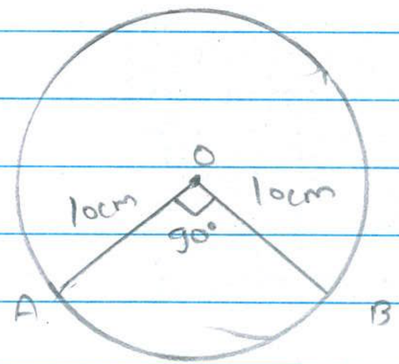
$$= \frac{1}{48} = 0.0208\bar{3}$$

$\therefore$ Probablity 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) ~~90~~

So, $\theta = 90°$

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

Area of minor sector $= \frac{\theta}{360°} \times \pi r^2$

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

$= \frac{1}{4} \times 3.14 \times 100$

$= \frac{1}{4} \times 314$

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

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

∴ The area of minor sector is '$\underline{78.5\ cm^2}$'.

Now, area of major sector $\cancel{= \frac{\theta}{360} \times}$

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

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

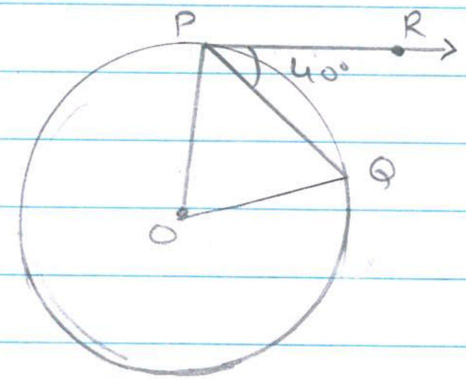
$= \frac{270°}{360°} \times 3.14 \times 100$

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

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

∴ The area of major sector is '$235.5\,cm^2$'.

Q.31] (b)



Given, a circle with centre O and $\angle RPQ = 40°$ 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, $\angle OPR = 90°$

Now, $\angle OPR = \angle OPQ + \angle QPR = 90°$

$\rightarrow \angle OPQ + \angle QPR = 90°$

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

$\rightarrow \angle OPQ = \underline{\underline{50°}}$

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, $\angle OPQ = \angle OQP = 50°$ — eq ①

Now, using angle sum property of triangle:-

$\rightarrow \angle OPQ + \angle OQP + \angle POQ = 180°$

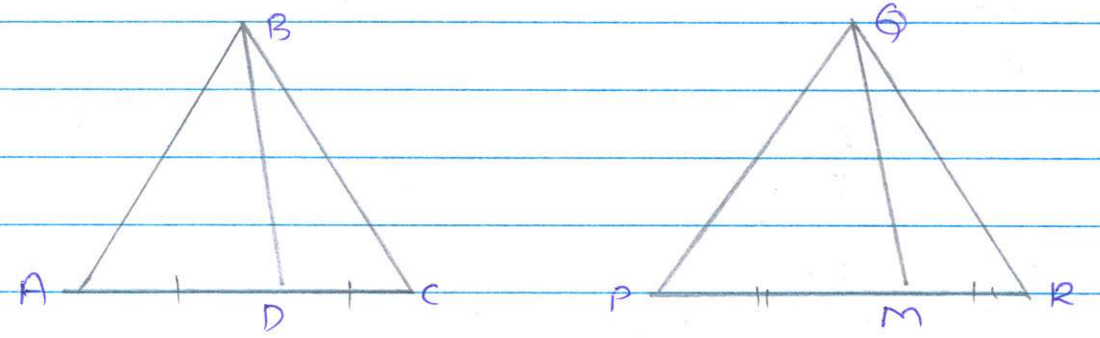
$\rightarrow 50° + 50° + \angle POQ = 180°$ [from eq ①]

$\rightarrow \angle POQ = \cancel{100^\circ}\ 80^\circ$

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

SECTION - D

Q.32]



Given, ΔABC and ΔPQR with median BD and QM respectively

Also, $\Delta ABC \sim \Delta PQR$

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

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

As, $\triangle ABC \sim \triangle PQR$

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

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

$\longrightarrow$ $\angle ABC = \angle PQR$; $\angle BCA = \angle QRP$ and $\angle BAC = \cancel{\angle PRQ}\ \angle QPR$

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

$\longrightarrow \frac{AB}{PQ} = \frac{1/2\,AC}{1/2\,PR}$

$\longrightarrow \frac{AB}{PQ} = \frac{AD}{PM}$ [As BD and QM are medians]

Now in $\triangle ABD$ and $\triangle PQM$

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

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

So, by SAS similarity criterion, ~~ΔABD and Δ~~ $\Delta ABD \sim \Delta PQM$

Now, $\dfrac{AB}{PQ} = \dfrac{BD}{QM}$ [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 $= a^3 = 125cm^3$ [given]

So, $a^3 = 125cm^3$

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

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

$\longrightarrow a = [(5)^3]^{1/3}$

$\longrightarrow a = 5$ cm

∴ The dimension of each of the side of cube is 5cm.

Now, the surface area of resulting cuboid:-

Dimensions of the cuboid:-

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

Breadth of cuboid :- Remains same = 5cm

Height of cuboid :- Remains same = 5cm

Now, using

T.S.A of cuboid = $2(lb + bh + lh)$

[Substituting all appropriate value]

$\longrightarrow 2[(10\times5)+(5\times5)+(10\times5)]\ cm^2$

$\longrightarrow 2[50+25+50]\ cm^2$

$\longrightarrow 2[125]\ cm^2$

$\longrightarrow \underline{\underline{250\ cm^2}}$

$\therefore$ The surface area of resulting cuboid is '$\underline{\underline{250\ cm^2}}$'.

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

[Substituting with all appropriate values]

$\longrightarrow (10\times5\times5)\ cm^3$

$\longrightarrow \underline{\underline{250\ cm^3}}$

$\therefore$ The Volume of resulting cuboid is also '$\underline{\underline{250\ cm^3}}$'.

Q.34]

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

To find, sum of first n terms $\rightarrow S_n$

n^{th} term $\rightarrow a_n$

So, ~~$S_7 = 91 =$~~

Now using, formula

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

$$\rightarrow S_7 = 91 = \frac{7}{2}\left[2a + (7-1)d\right]$$

$$= \frac{7}{2}\left[2a + 6d\right]$$

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

$$\rightarrow 13 = a + 3d \text{ — eq } ①$$

Again, $S_{17} = 561 = \frac{17}{2}\left[2a + (17-1)d\right]$

$= \frac{17}{2}\left[2a + 16d\right]$

$\rightarrow 561 = 17\left[a + 8d\right]$

$\rightarrow 33 = a + 8d$ — eq (2)

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

$\rightarrow$

$$\begin{array}{r} a + 8d = 33 \\ -\ a + 3d = 13 \\ \hline 5d = 20 \end{array}$$

$\boxed{d = 4}$ — eq (3)

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

$\rightarrow a + 3d = 13$

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

$\rightarrow \boxed{a = 1}$ — eq (4) a → first term of A.P.

Now, sum of first n terms:-

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

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

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

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

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

$$= n\left[1 + 2n - 2\right]$$

$$= n \cdot \left[2n - 1\right]$$

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

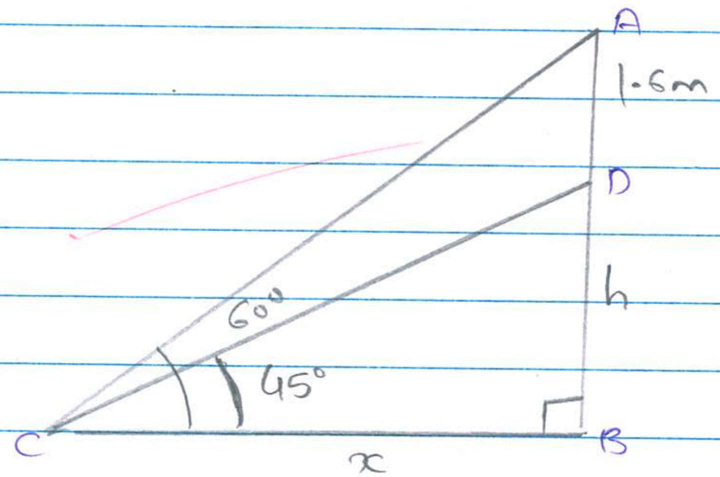
∴ The sum of 'n' terms of an A.P. is '$2n^2 - n$',

Now, n^{th} term:

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

∴ n^{th} term of an A.P. is '$\underline{4n-3}$'.

Q.35]



In the given figure,

DB $\longrightarrow$ pedestal

AD $\longrightarrow$ Statue

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

AB $\longrightarrow$ 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 ΔDBC

$$\tan 45° = \frac{DB}{BC}$$

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

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

Now, in $\triangle ABC$

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

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

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

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

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

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

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

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

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

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

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

$= \dfrac{1.6(\sqrt{3}+1)}{2}$

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

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

$= (0.8)(2.732)\ m$

$= \underline{\underline{2.1856\ m}}$

$\therefore$ 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 ⟶ $3x + 2y = ₹80$ — eq ①
$4x + 3y = ₹110$ — eq ②

(ii) Multiplying eq ① by 3 and eq ② by 2, we get

⟶ $9x + 6y = 240$
$-\ 8x + 6y = 220$
$\boxed{x = 20}$

[Substracting eq ① from ②, using elimination method]

∴ Price of one notebook is "₹20".

(iii) Substituting value of x in eq ① ⟶ $3(20) + 2y = 80$
⟶ $2y = 20$ ⟶ $y = ₹10$

∴ The value of pen is ₹10.

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

Q.37] (i) Model 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

∴ 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,

~~md~~ mode = $l + \left(\frac{f_1 - f_0}{2f_1 - f_0 - f_2}\right) \times h$

$= 10 + \left(\frac{22-16}{44-16-18}\right) \times 5$

$= 10 + \left(\frac{6}{10}\right) \times 5$

$= \underline{\underline{13}}$

∴ mode NAV of mutual funds is ~~$~~ $\underline{13}$.

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

(ii) Distance of pole $B(\overset{x_1, y_1}{6, 6})$ from corner of park $O.(\overset{x_2, y_2}{0, 0})$.

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

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

$\rightarrow \sqrt{72}$

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

(iii) (b) ~~Disbetwee~~ Distance between poles $A \overset{x_1, y_1}{(2,7)}$ and $C \overset{x_2, y_2}{(5,4)}$.

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

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

$\rightarrow \sqrt{9+9}$

$\rightarrow \sqrt{18}$

$\rightarrow 3\sqrt{2}$ units

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

ROUGH WORK

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

$40 - 29$

$\frac{11}{27} \quad \frac{1}{2} \times 5$

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

12.5

α β $\alpha \cdot \beta$

$+0.8$ / 21.856

$78.5 \times 3 = 235.5$

$2.732 + 0.8 = 21856$

ROUGH WORK

$1 + \sec\theta + \cos\theta$

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

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

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

$\frac{1}{6} \times \frac{22}{7} \times 36$

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

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

0 30° 45° 60° 90°

$1/\sqrt{2}$

9m $3\sqrt{3}$ m

$(6)^3$

$(2 \times 3)^3$

$\frac{3 \times 3}{3\sqrt{3}}$ $\sqrt{3}$

$27 \times 8 = 216$

$3m = 7 + 16$

$m = \frac{23}{3}$

$5\ 1314$

$25 - 16 \rightarrow 9$

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

1314×17 = 22338

$\times 18$ = 402084

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

$9 - 15 + 4$

$\rightarrow -2$

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

$\rightarrow \sqrt{9+16}$

$\rightarrow 5$

1314×306 = 7884, 394200, 402084

131

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

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

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

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

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

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

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

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

$1 - \cos^2\theta$

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

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

$\frac{5}{7} \neq \frac{2}{6} = \frac{6}{8}$

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

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

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