Mathematics Basic - 241

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Question Number

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SECTION A

Q1.

Ans 1. (C) 1 : 4

Q2.

Ans 2. (D) Sphere

Q3.

Ans 3. (D) 62.5

Q4.

Ans 4. (B) 4000

Q5.

Ans 5. (B) $\frac{5}{6}$

$1 - \frac{1}{6}$

$\frac{5}{6}$

~~Q6.~~

~~Ans 6. (B) an irrational number~~

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Q6.

Ans 6. (D) ab

Q7.

Ans 7. (B) an irrational number

Q8.

Ans 8. (B) 49

Q9.

Ans 9. (A) 5

Q10.

Ans 10. (B) b - a

Q11.

Ans 11. (C) 1:1

Q12.

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Ans 12. (D) RHS

Q13.

Ans 13. (C) $\angle P = 40^\circ$

Q14.

Ans 14. (D) 12 cm

Q15.

Ans 15. (C) $\sin 30^\circ = \cos 30^\circ$

Q16.

Ans 16. (B) 1

Q17.

Ans17. (C) z

Q18.

Ans 18. (C) $l + 2r$

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Q19.

Ans 19. (A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

Q20.

Ans 20. (D) Assertion (A) is false, but Reason (R) is true.

Q21.

SECTION B

Ans 21. Radius of circular sheet $(r) = 70$ cm

So, Area of circular sheet $= \pi r^2 = \frac{22}{\cancel{7}} \times \cancel{70}^{10} \times 70 \text{ cm}^2 = 15400 \text{ cm}^2$

A quadrant is cut,

Area of quadrant $= \frac{1}{4} \times \pi r^2 = \frac{1}{\cancel{4}_2} \times \frac{\cancel{22}^{11}}{\cancel{7}} \times \cancel{70}^{\cancel{10}\,5} \times 70 \text{ cm}^2 = 3850 \text{ cm}^2$

$\therefore$ Area of the remaining sheet = Area of whole circular sheet − Area of quadrant

$= 15400 \text{ cm}^2 - 3850 \text{ cm}^2$

$= 11550 \text{ cm}^2$

Ans.

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Q22.

Ans 22. $3x + 5y = 8$ — (I)

$5x - 3y = 2$ — (II)

From (I), $3x + 5y = 8$

$3x = 8 - 5y$

$x = \frac{8-5y}{3}$ — (III)

Substitute x in (II)

$5x - 3y = 2$

$\Rightarrow 5\left(\frac{8-5y}{3}\right) - 3y = 2$

$\Rightarrow \frac{40-25y}{3} - 3y = 2$

$\Rightarrow \frac{40-25y-9y}{3} = 2$

$\Rightarrow \frac{40-34y}{3} = 2$

$\Rightarrow 40 - 34y = 2 \times 3$

$\Rightarrow 40 - 34y = 6$

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$\Rightarrow -34y = 6-40$

$\Rightarrow \cancel{-34}y = \cancel{-34}$

$y = 1$

Put $y = 1$ in equation ①

$\Rightarrow 3x + 5y = 8$

$\Rightarrow 3x + 5(1) = 8$

$\Rightarrow 3x + 5 = 8$

$\Rightarrow 3x = 8 - 5$

$\Rightarrow \cancel{3}x = \cancel{3}$

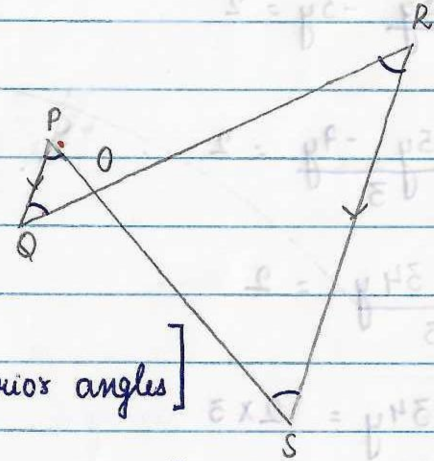
$x = 1$

So, $x = 1, y = 1$

Q23. (a)

Ans 23. Given - $PQ \parallel RS$ in the figure

To prove - $\Delta POQ \sim \Delta SOR$



Proof - In ΔPOQ and ΔSOR

$\angle PQO = \angle SRO$ [Given, $PQ \parallel RS$ alternate interior angles]

$\angle OPQ = \angle OSR$ [Given, $PQ \parallel RS$ alternate interior angles]

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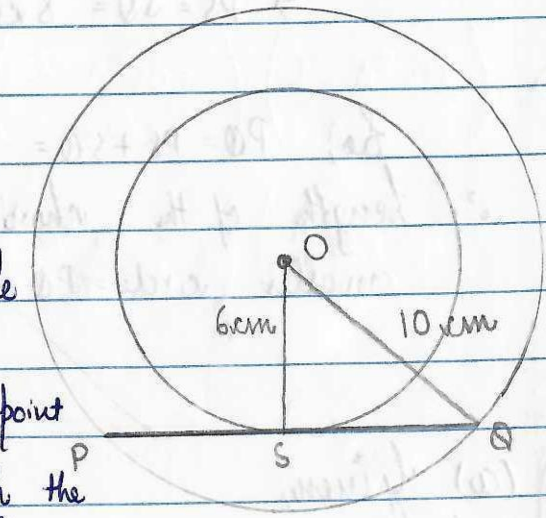
By AA similarity rule, $\Delta POQ \sim \Delta SOR$

Q 24.

Ans 24. Given - Two concentric circles are of radii 6 cm and 10 cm

To find - length of the chord of larger circle i.e. PQ



Solution - Here, $\angle OSQ = 90°$ [The tangent at any point of a circle is $\perp$ to the radius through the point of contact]

So, In rt. ΔOSQ

$$H^2 = B^2 + P^2$$

$$(OQ)^2 = (SQ)^2 + (OS)^2$$

$$(10)^2 = (SQ)^2 + (6)^2$$

$$100 = (SQ)^2 + 36$$

$$(SQ)^2 = 100 - 36$$

$$(SQ)^2 = 64$$

$$SQ = \sqrt{64} = \pm 8 \text{ cm}$$

Since, length cannot be in negative

so, $SQ = 8$ cm

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Also, since $OS \perp PQ$ [Proved above]

$\Rightarrow PS = SQ = 8\,cm$ [Perpendicular to a chord from the centre of circle bisects the chord]

So, $PQ = PS + SQ = 8\,cm + 8\,cm = 16\,cm$

$\therefore$ Length of the chord of the larger circle which touches the smaller circle $= PQ = 16\,cm$

Q25.

Ans 25. (a) Given,

$\tan(A+B) = 1$

$\Rightarrow \tan 45^\circ = 1$

Comparing the angles, we get

$A + B = 45^\circ$

$A = 45^\circ - B$ —(1)

Also, given,

$\tan(A-B) = \frac{1}{\sqrt{3}}$

$\tan 30^\circ = \frac{1}{\sqrt{3}}$

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Comparing the angles, we get

$A - B = 30^\circ$

$\Rightarrow 45^\circ - B - B = 30^\circ$ [From ①]

$\Rightarrow 45^\circ - 2B = 30^\circ$

$\Rightarrow -2B = 30^\circ - 45^\circ$

$\Rightarrow \cancel{-}2B = \cancel{-}15^\circ$

$\Rightarrow B = \frac{15^\circ}{2} = 7.5^\circ$

So, $A = 45^\circ - 7.5^\circ$ [From ①]

$A = 37.5^\circ$

$\therefore$ Value of $A = 37.5^\circ$

Value of $B = 7.5^\circ$

Ans.

$\begin{array}{r} 37.5 \\ +7.5 \\ \hline 45.0 \end{array}$

SECTION-C

Q 26

Ans 26. $(\sin A - \operatorname{cosec} A)(\cos A - \sec A) = \frac{1}{\tan A + \cot A}$

Taking L.H.S

$\Rightarrow (\sin A - \operatorname{cosec} A)(\cos A - \sec A)$

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$\Rightarrow \left(\sin A - \frac{1}{\sin A}\right)\left(\cos A - \frac{1}{\cos A}\right)$ $\left[\cancel{\sin}\ \operatorname{cosec} A = \frac{1}{\sin A},\ \sec A = \frac{1}{\cos A}\right]$

$\Rightarrow \left(\frac{\sin^2 A - 1}{\sin A}\right)\left(\frac{\cos^2 A - 1}{\cos A}\right)$

$\Rightarrow \left(\frac{-\cos^2 A}{\sin A}\right)\left(\frac{-\sin^2 A}{\cos A}\right)$ $\left[\sin^2 A + \cos^2 A = 1\right]$

$\Rightarrow -\frac{\cancel{\cos^2 A}^{\cos A}}{\cancel{\sin A}} \times -\frac{\cancel{\sin^2 A}^{\sin A}}{\cancel{\cos A}}$

$\Rightarrow -\cos A \times -\sin A$

$\Rightarrow \cos A \cdot \sin A$

Taking R.H.S

$\Rightarrow \frac{1}{\tan A + \cot A}$

$\Rightarrow \frac{1}{\frac{\sin A}{\cos A} + \frac{\cos A}{\sin A}}$ $\left[\tan A = \frac{\sin A}{\cos A},\ \cot A = \frac{\cos A}{\sin A}\right]$

$\Rightarrow$

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$$\Rightarrow \frac{1}{\frac{\sin^2 A + \cos^2 A}{\sin A \cdot \cos A}}$$

$$\Rightarrow 1 \times \frac{\sin A \ \cos A}{\sin^2 A + \cos^2 A}$$

$$\Rightarrow 1 \times \frac{\sin A \ \cos A}{1} \qquad [\sin^2 A + \cos^2 A = 1]$$

$$\Rightarrow \sin A \ \cos A$$

$$\Rightarrow \cos A \ \sin A$$

So, L.H.S = R.H.S = $\cos A \cdot \sin A$

Hence proved#

Q 27.

Ans 27. A customer will buy a pen if it is not defective

~~No. of~~ Total number of pens in the lot = 200

No. of good pens = 180

So, no. of defective pens = Tot. no. of pens − No. of good pens

= 200 − 180

= 20

Probability that the customer will not buy it = $\frac{\text{No. of defective pens}}{\text{Tot. no. of pens}}$

$= \frac{\cancel{20}^{1}}{\cancel{200}_{10}}$

$= \frac{1}{10} = 0.1$

Another lot of pens in which,

Tot. no. of pens = 100

No. of good pens in it = 80

So, no. of defective pens in it = 100 - 80

= 20

So, in the entire lot,

Tot. no. of pens = 200 + 100 = 300

Tot. no. of good pens = 180 + 80 = 260

Tot. no. of defective pens = 20 + 20 = 40

So, Probability that the customer will buy the pen

$= \frac{\text{Tot No. of good pens}}{\text{Tot. no. of pens}} = \frac{\cancel{260}^{13}}{\cancel{300}_{15}} = \frac{13}{15}$

Ans.

Q28.

Ans 28.

(a) Let us assume to the contrary that $\sqrt{3}$ is rational

$\sqrt{3} = \frac{a}{b}$, a & b are co-primes, $b \neq 0$

$\sqrt{3}b = a$

Squaring both sides

$\Rightarrow (\sqrt{3}b)^2 = a^2$

$\Rightarrow 3b^2 = a^2$

$\cancel{\Rightarrow 3b^2 = a^2}$

$\Rightarrow b^2 = \frac{a^2}{3}$

a^2 is divisible by 3

a is also divisible by 3 —(1)

So, $a = 3c$ [c is any integer]

Put $a = 3c$ in $3b^2 = a^2$

$\Rightarrow 3b^2 = (3c)^2$

$\Rightarrow \cancel{3}b^2 = \cancel{9}^{3}c^2$

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$\Rightarrow b^2 = 3c^2$

$\Rightarrow \frac{b^2}{3} = c^2$

Since,
b^2 is divisible by 3,
so b is also divisible by 3 —(II)
From (I) and (II)
Both a & b have common factor i.e. 3 , This contradicts the fact that a & b are co-primes. This contradiction is arisen due to our incorrect assumption that $\sqrt{3}$ is rational.
So, we conclude that $\sqrt{3}$ is irrational

Q29.

Ans 29.
Given,
Sum of zeroes = −10
Product of zeroes = 24

So, required quadratic polynomial
$= x^2 - (\text{Sum of zeroes})x + \text{Product of zeroes}$
$= x^2 - (-10)x + 24$
$\Rightarrow x^2 + 10x + 24$

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$\Rightarrow x^2 + 10x + 24$

$\Rightarrow x^2 - 2x + 12x$

$\Rightarrow x^2 + 10x + 24$

$\Rightarrow x^2 + 4x + 6x + 24$

$\Rightarrow x(x+4) + 6(x+4)$

$\Rightarrow (x+4)(x+6)$

So, $x+4=0$; $x+6=0$

$x=-4$; $x=-6$

So, the zeroes of the polynomial obtained are -4 and -6

Q30.

Ans30 (b) Given, x° and y° are complementary angles and $x:y = 1:2$

So, $x + y = 90^\circ$

$\frac{x}{y} = \frac{1}{2} \Rightarrow 2x = y$

$\Rightarrow 2x - y = 0$

So, the system of linear equations in two variables :-

$x + y = 90$ —(i)

$2x - y = 0$ —(ii)

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$$\Rightarrow \quad x + \cancel{y} = 90$$
$$2x - \cancel{y} = 0$$
$$3x = \cancel{90}\ 30$$
$$x = 30$$

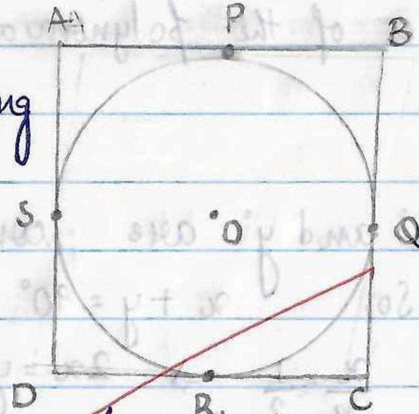
So, $x + y = 90$ [From ①]

$$30 + y = 90$$
$$y = 60$$

$\therefore\ x = 30^\circ,\ y = 60^\circ$

Q 31.

Ans 31. Given :- A rectangle is circumscribing a circle

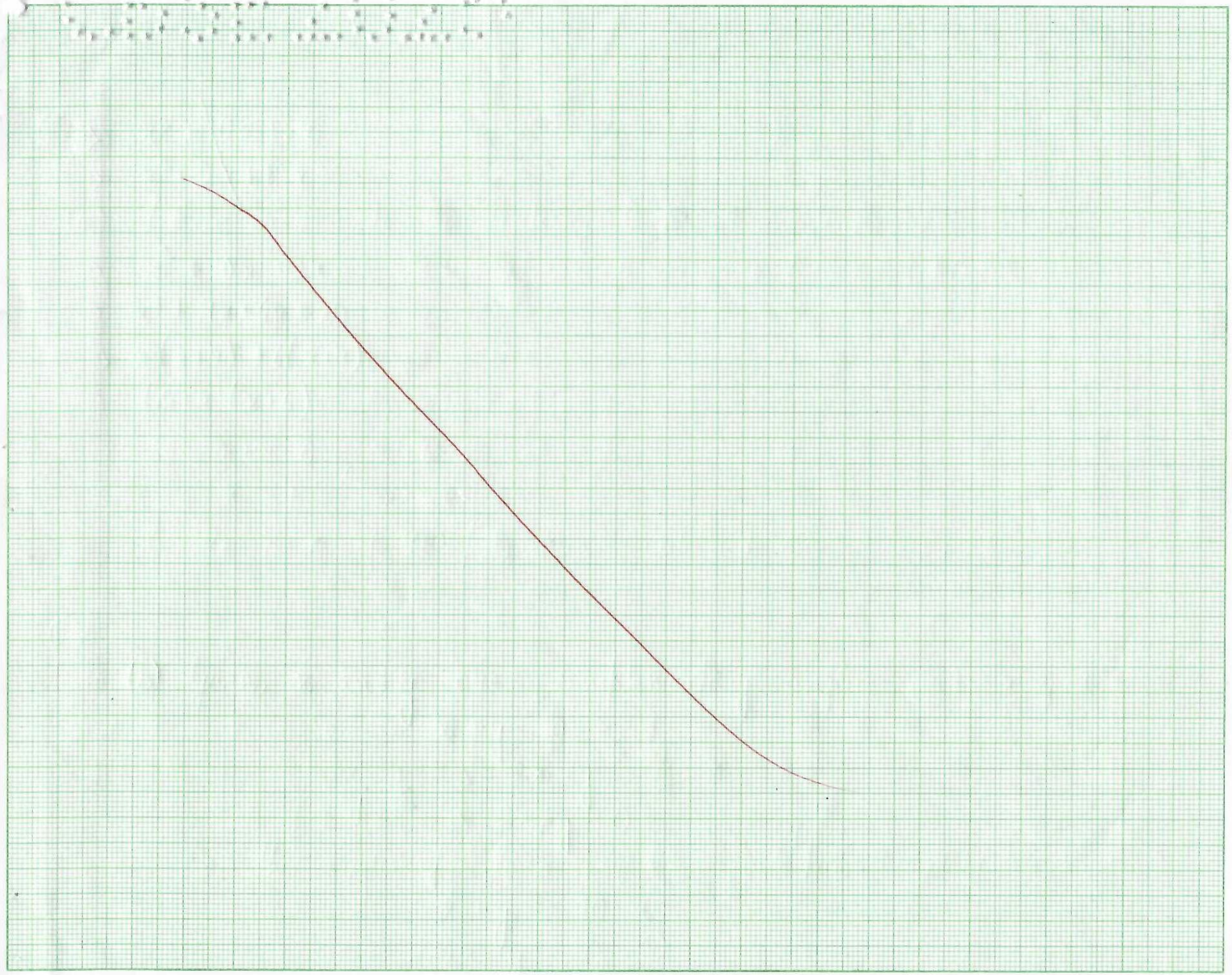


To prove - Rectangle (ABCD) circumscribing the circle is a square

Proof :- Here, A, B, C, D are external points from where tangents are drawn

$\Rightarrow AP = AS$
$\Rightarrow BP = BQ$
$\Rightarrow CR = CQ$
$\Rightarrow DR = DS$

[Length of Tangents drawn from an external point to a circle are equal]



Adding them,

$AP + BP + CR + DR = AS + DS + BQ + CQ$

$\Rightarrow AB + CD = AD + BC$

$\Rightarrow AB + AB = AD + AD$ [Opposite sides of rectangle are equal so, $AB = CD$, $AD = BC$ — (ii)

$\Rightarrow \cancel{2}AB = \cancel{2}AD$

$AB = AD$ — (i) ~~Also~~

From (i) and (ii)

$AB = AD = CD = BC$

Since, all the 4 sides ~~of~~ are equal.

So, ABCD is a square

SECTION-D

Q32.

Ans 32.

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Q-32

Age (in years)	Number of policy holders (f)	Cumulative frequency (cf)
15-20	2	2
20-25	4	2+4=6
25-30	18	6+18=24
30-35	21	24+21=45
35-40	33	45+33=78
40-45	11	78+11=89
45-50	3	89+3=92
50-55	6	92+6=98
55-60	2	98+2=100

Here, $n = 100$

So, $\frac{n}{2} = \frac{100}{2} = 50$

So, (35-40) is the median class

So, $l = 35$, $\frac{n}{2} = 50$, $cf = 45$, $f = 33$, $h = U.L - L.L = 40 - 35 = 5$

$\therefore$ Median age $= l + \left(\frac{\frac{n}{2} - cf}{f}\right) \times h$

~~= 35 + (~~

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$= 35 + \left(\frac{50-45}{33}\right) \times 5$

$= 35 + \frac{5}{33} \times 5$

$= 35 + \frac{25}{33}$

$= 35 + 0.76$ (approx.)

$= 35.76$ (approx.)

So, median age of policy holders $= 35.76$ years (approx.)

0.7575
$33\overline{)250}$
231
190
165
250
231
190

35
33
105
105
115
0025
1180

$35.$
$33\overline{)1180}$
99
190
165
250

Q 33.

Ans 33.

(b) Given quadratic equation,

$2x^2 + kx + 3 = 0$

Since it has real and equal roots,

$D = 0$

$\Rightarrow b^2 - 4ac = 0$

$\Rightarrow k^2 - 4 \times 2 \times 3 = 0$

$\Rightarrow k^2 - 24 = 0$

$\Rightarrow k^2 = 24$

$k = \pm\sqrt{24} = \pm 2\sqrt{6}$

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So, the values of k are $2\sqrt{6}$ and $-2\sqrt{6}$

So, the equations formed are

$$2x^2 + 2\sqrt{6}x + 3 = 0 \quad \text{and} \quad 2x^2 - 2\sqrt{6}x + 3 = 0$$

$\Rightarrow 2x^2 + 2\sqrt{6}x + 3 = 0$

$\Rightarrow 2x^2 + \sqrt{6}x + \sqrt{6}x + 3 = 0$

$\Rightarrow \sqrt{2}x(\sqrt{2}x + \sqrt{3}) + \sqrt{3}(\sqrt{2}x + \sqrt{3}) = 0$

$\Rightarrow (\sqrt{2}x + \sqrt{3})(\sqrt{2}x + \sqrt{3}) = 0$

So, $\sqrt{2}x + \sqrt{3} = 0$; $\sqrt{2}x + \sqrt{3} = 0$

$\Rightarrow \sqrt{2}x = -\sqrt{3}$ / $\sqrt{2}x = -\sqrt{3}$

$x = \frac{-\sqrt{3}}{\sqrt{2}}$ $\quad$ $x = \frac{-\sqrt{3}}{\sqrt{2}}$

So, the roots of this equation are $\frac{-\sqrt{3}}{\sqrt{2}}, \frac{-\sqrt{3}}{\sqrt{2}}$

another equation,

$2x^2 - 2\sqrt{6}x + 3 = 0$

$\Rightarrow 2x^2 - \sqrt{6}x - \sqrt{6}x + 3 = 0$

$\Rightarrow \sqrt{2}x(\sqrt{2}x - \sqrt{3}) - \sqrt{3}(\sqrt{2}x - \sqrt{3}) = 0$

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$\Rightarrow (\sqrt{2}x-\sqrt{3})(\sqrt{2}x-\sqrt{3})=0$

So, $\sqrt{2}x-\sqrt{3}=0$; $\sqrt{2}x-\sqrt{3}=0$

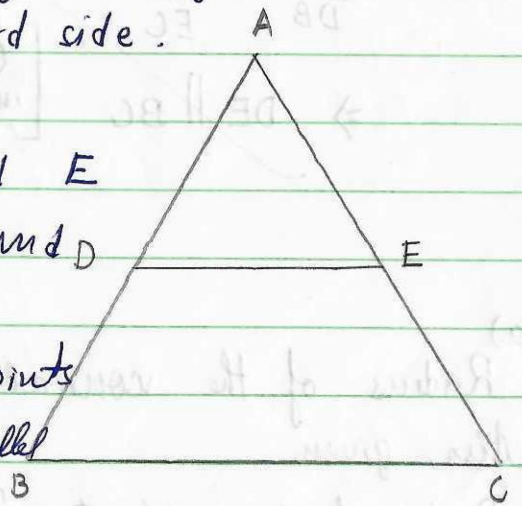
$x=\frac{\sqrt{3}}{\sqrt{2}}$; $\sqrt{2}x=\sqrt{3}$

$x=\frac{\sqrt{3}}{\sqrt{2}}$

So, the roots of this equation are $\frac{\sqrt{3}}{\sqrt{2}}, \frac{\sqrt{3}}{\sqrt{2}}$

Q34.

Ans34. Converse of "Basic Proportionality Theorem" states that if a line is drawn to intersect any two sides of triangle in distinct points in the same ratio, then the line is parallel to third side.



Given :- ABC is a triangle and D and E are the mid-points of the sides AB and CD respectively.

To prove :- Line segment joining mid-points of any two sides of a triangle is parallel to the third side, DE || BC

Proof :- Given, D is the mid-point of AB

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$\Rightarrow AD = DB$

$\Rightarrow \frac{AD}{DB} = 1$ —(i)

Similarly, it is given that E is the mid-point of AC

$\Rightarrow AE = EC$

$\Rightarrow \frac{AE}{EC} = 1$ —(ii)

From (i) and (ii)

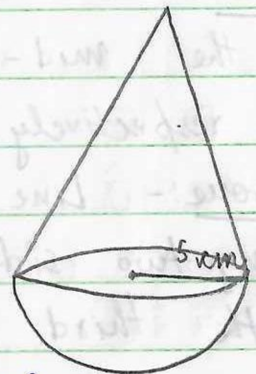
$\frac{AD}{DB} = \frac{AE}{EC}$

$\Rightarrow DE \parallel BC$ [Converse of BPT Theorem, if a line is drawn to intersect any two sides of Δ in the same ratio, then the line is parallel to the third sides]

Hence Proved #

Q 35. (a)

Ans 35. Radius of the conical part (r) = 5 cm



Also, given

Radius of conical part = Radius of hemisphere = r = 5 cm

Also, Height of the conical part (h) = Diameter of base

= 2 × 5 cm = 10 cm

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Volume of the toy = Volume of ~~conical~~ conical part + Volume of hemisphere

$= \frac{1}{3}\pi r^2 h + \frac{2}{3}\pi r^3$ ~~cm~~^{3}

$= \frac{1}{3}\pi r^2 (h + 2r)$

$\Rightarrow \frac{1}{3} \times \frac{22}{7} \times 5 \times 5 (10 + 2 \times 5)$ cm^3

$\Rightarrow \frac{1}{3} \times \frac{22}{7} \times 25 \times (10 + 10)$ cm^3

$\Rightarrow \frac{1}{3} \times \frac{22}{7} \times 25 \times 20$ cm^3

$= \frac{11000}{21}$ cm^2

$= 523.81$ ~~(approx)~~ cm^3 (approx.)

Ans.

Q36.

Ans36. Point A $(\overset{x_1}{10}, \overset{y_1}{20})$ and B $(\overset{x_2}{50}, \overset{y_2}{50})$

(i) Since, centre is the mid-point of a diameter

So, Coordinates of the centre C $= \left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$ [By mid-point formula]

$\frac{33}{50}$ $\frac{50}{550}$ 550 20 000 1100 11000

500 22 1000 1000x 11000

523.809
21) 11000
105
50
42
80
63
170
168
20
189
11

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$$\Rightarrow \left(\frac{10+50}{2}, \frac{20+50}{2}\right)$$

$$\Rightarrow \left(\frac{60}{2}, \frac{70}{2}\right)$$

$$\cancel{\Rightarrow \left(30, \frac{70}{2}\right)}$$

$$\Rightarrow (30, 35)$$

So, coordinates of centre C $= (30, 35)$ Ans.

Points of $C = (\overset{x_3}{30}, \overset{y_3}{35})$ and $A = (\overset{x_1}{10}, \overset{y_1}{20})$

(ii) Radius of circular park $= AC$

$$= \sqrt{(x_3 - x_1)^2 + (y_3 - y_1)^2}$$

$$= \sqrt{(30-10)^2 + (35-20)^2}$$

$$= \sqrt{20^2 + 15^2}$$

$$= \sqrt{400 + 225}$$

$$= \sqrt{625}$$

$$= 25 \text{ units}$$

(iii) It is given that

$AP = PQ = QB$

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0 30 45 60 9
0 $\frac{1}{2}$ $\frac{1}{\sqrt{2}}$ $\frac{\sqrt{3}}{2}$ 1
1 $\frac{\sqrt{3}}{2}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{2}$ 0
0 $\frac{1}{\sqrt{3}}$ 1 B.N.

So, P divides AB internally in the ratio $\overset{m_1}{1} : \overset{m_2}{2}$

$A(\overset{x_1}{10}, \overset{y_1}{20})$ and $B(\overset{x_2}{50}, \overset{y_2}{50})$

So, Coordinates of point P $= \left(\frac{m_1x_2 + m_2x_1}{m_1+m_2}, \frac{m_1y_2 + m_2y_1}{m_1+m_2}\right)$

$= \left(\frac{1\times 50 + 2\times 10}{1+2\ 3}, \frac{1\times 50 + 2\times 20}{1+2\ 3}\right)$

$= \left(\frac{50+20}{3}, \frac{50+40}{3}\right)$

$= \left(\frac{70}{3}, \frac{90}{3}\right)$

$= \left(\frac{70}{3}, 30\right)$

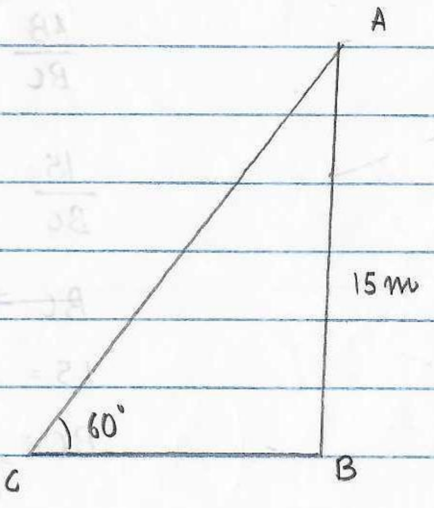
Q37.

Ans 37. (i) Height of building (AB) = 15 m

Let the length of the ladder = AC

In rt. ΔABC

$\frac{AB}{AC} = \sin 60°$



$\Rightarrow \frac{15}{AC} = \frac{\sqrt{3}}{2} \Rightarrow 15\times 2 = AC\sqrt{3}$

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$\Rightarrow 30 = AC\sqrt{3}$

$\Rightarrow \frac{30}{\sqrt{3}} = AC$

$AC = \frac{30}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}}\ m = \frac{\overset{10}{\cancel{30}}\sqrt{3}}{\cancel{3}} = 10\sqrt{3}\ m$

So, the length of the ladder used by the fireman to reach the roof $= 10\sqrt{3}\ m$

(ii) Let the distance of point on the ground at which the ladder was fixed from the bottom of the building $= BC$

In rt. ΔABC

$\frac{AB}{BC} = \tan 60°$

$\frac{15}{BC} = \sqrt{3}$

~~$BC = \frac{15}{}$~~

$15 = BC\sqrt{3}$

$BC = \frac{15}{\sqrt{3}}$

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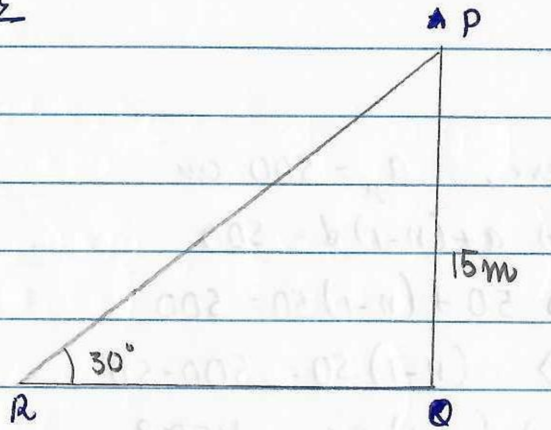
$$BC = \frac{15}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = \frac{\overset{5}{\cancel{15}}\sqrt{3}}{\cancel{3}} = 5\sqrt{3}\ m$$

Ans



(iii) (b) Let the length in this case = PR

In rt. ΔPQR

$$\frac{PQ}{PR} = \sin 30^\circ$$

$$\frac{15}{PR} = \frac{1}{2}$$

$PR = 15 \times 2 = 30\ m$

So, Length of ladder in this case = 30 m

Q38.

Ans 38. Radius of 1^{st} spiral $(a) = 50$ cm

Radius of 2^{nd} spiral $(a_2) = 100$ cm

Radius of 3^{rd} spiral $(a_3) = 150$ cm

So, it forms an AP with $a = 50$, $d = 100 - 50 = 50$

(i) Radius of 13^{th} spiral $(a_{13}) = a + 12d$

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$= 50 + 12(50)$ cm

$= 50 + 600$ cm

$= 650$ cm

(ii) Here, $a_n = 500$ cm

$\Rightarrow a + (n-1)d = 500$

$\Rightarrow 50 + (n-1)50 = 500$

$\Rightarrow (n-1)50 = 500 - 50$

$\Rightarrow (n-1)\cancel{50} = \cancel{450}\ 9$

$\Rightarrow n - 1 = 9$

$n = 9 + 1$

$n = 10$

$\therefore$ Value of $n = 10$

(iii) No. of ~~spirals in~~ saplings of flowers in Spiral 1 = 10

" " " " Spiral 2 = 20

" " " " Spiral 3 = 30

It forms an AP with $a = 10$, $d = 20 - 10 = 10$

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So, total number of saplings till the 11^{th} spiral $= S_{11}$

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

$$= \frac{11}{2}[2(10)+(11-1)10]$$

$$= \frac{11}{2}[20+10\times10]$$

$$= \frac{11}{2}[20+100]$$

$$= \frac{11}{\cancel{2}} \times \cancel{120}\ 60$$

$= 660$ saplings Ans

$\frac{11}{2}(20+100)$ 60

$\frac{11}{\cancel{2}} \times \cancel{120}$

660