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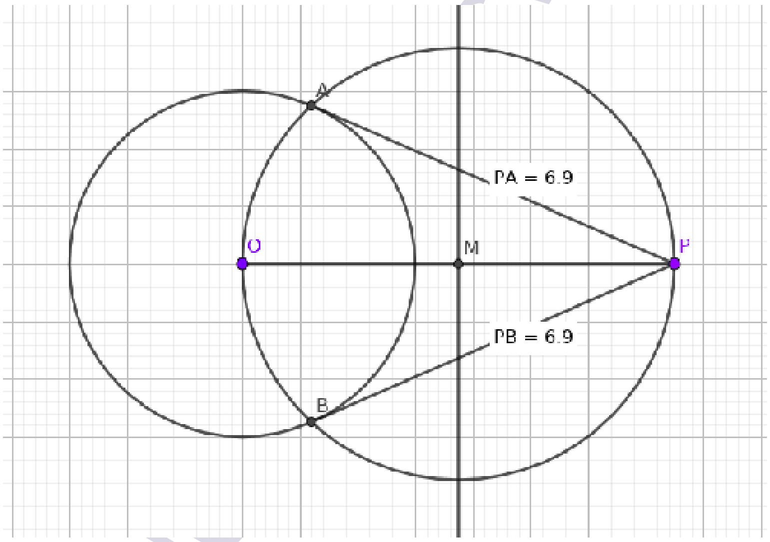
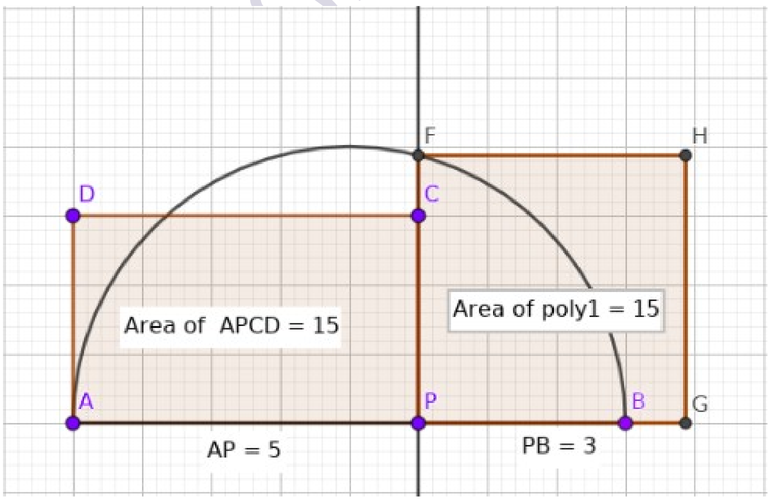
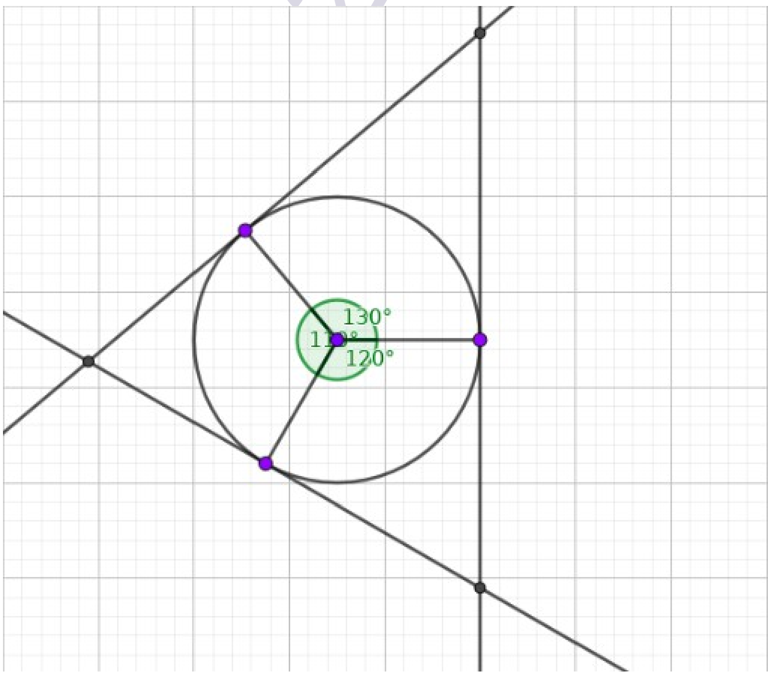
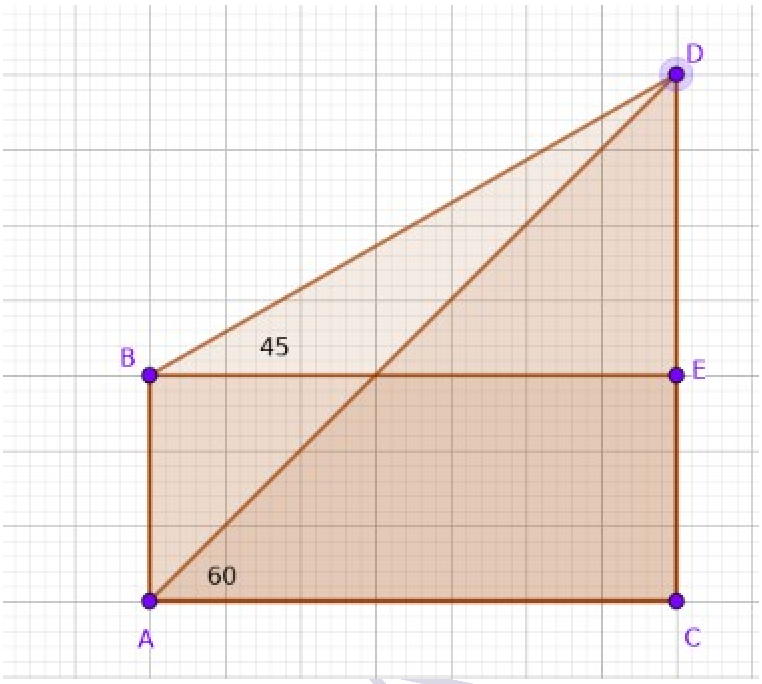
Question Number	Sub Qn	Detailed Answer	Scores
1	a	70	1
	b	140	1
2	a	5 , 8, 11,....	1
	b	$X_{12} = 38$	1
3		P(5,8)	2
4	a	P(1) = 0	1
	b	(x-1)	1
5	a	$D=\frac{62-38}{8-5}=8$	2
	b	No, 100 is not a multiple of the common differnce	1
6	a	H = 8 cm	1
	b	$V=\frac{1}{3}a^2h=480\,cm^3$	2
7			3
8	a	4 units	1
	b	C(4,4) , D(6,4)	2
9	a	Let the numbers be x and x+ 8 x(x+ 8) = 768	1
	b	$x^2+8x=768$ On Solving , x = 24 Numbers are 24 and 32	2
10	a	Inside the circle	1
	b	AB parallel to DC, Hence AD = BC ABCD is an isosceles trapezium We can draw a circle passing through A, B, C and D (An isosceles trapezium is always cyclic)	2
11	a	<ADB = <ACB = 65	1

	b	$AD=\frac{9}{\sin 65}=\frac{9}{0.9}=10$	2
12	a	R = l = 15 cm	1
	b	$\frac{3}{15}=\frac{x}{360}$ x = 72	1
	c	Area = $\frac{x}{360}*\pi r^2=45\pi cm^2$	2
13	a	$m=\frac{-3}{4}$	1
	b	$3x+4y-34=0$	2
	c	P(x, y) Q(x-4, y+ 3) , $Slope\ of\ PQ=\frac{-3}{4}$, Q is a point on this line	1
14	a	3	1
	b	2	1
	c	$S=20^2+2x20=440$	1
	d	$S+1=n^2+2n+1=(n+1)^2$ is a perfect square	1
15	a	RS = 5 cm	1
	b	PQ = $5+5\sqrt{3}=5(1+\sqrt{3})$	1
	c	Angles 2x, 3x, 7x x = 15 Angles are 30 45 and 105 , Using the above figure PR : RQ : PQ = $5\sqrt{2}:10:5(\sqrt{3}+1)$ = $\sqrt{2}:2:\sqrt{3}+1$	2
16		 	4
17	a	l+ b = 28	1
	b	Let length = x breadth = 28 – x , diagonal = 20 $x^2+(28-x)^2=20^2$ $x^2-28x+192=0$ x = 16 cm	3

		Length = 16 cm, breadth = 12 cm	
18	a	In Triangle PMS, angles are 30, 60 , 90 Given SM = 3 cm Hence PS = 6 cm	1
	b	PR = PS + ST + TR = 6+ 3+ r =9 + r	1
	c	$\Delta PMS \sim \Delta PAR$ $\frac{MS}{AR}=\frac{PS}{PR}$ $\frac{3}{r}=\frac{6}{r+9}$ r = 9 cm	2
19	a	Total number of pairs = 11 x 12 =132 pairs	1
	b	P(Both Red) = $48/132=4/11$	1
	c	P (both White) = $20/132=5/33$	1
	d	P (atleast one red) = 1- P (both white) = $1-\frac{5}{33}=\frac{28}{33}$	1
20	a	Midpoint of AC= P (3,2)	1
	b	Diagonal AC is parallel to x – axis, Diagonal BD is parllel to y axis BD = 6 units, PD = PB = 3 units Hence, D(3,5) & B(3,-1)	2
	c	AB = 5 units	1
21	a	P(2) = 9	1
	b	Q(x) = P(x) – P(2) = 3x^2 – 5x - 2	1
	c	Q(x) = (x-2) (3x+1)	2
22	a	Mid point of AB = C(4,3)	1
	b	Radius = 5 units , $(x-4)^2+(y-3)^2=5^2$	2
	c	C is the midpoint of OD, Hence D(8,6)	1
23			5
24	a	PA = AB – PB = 10 – 2 = 8 cm	1

	b	Area of PQRS = $PS^2 = PA \times PB = 8 \times 2 = 16$	2
	c	Area of the square with side PM = $PM^2 = PO \times PB = 3 \times 2 = 6$	1
	d	Ratio of areas = 16 : 6 = 8 : 3	1
25	a		2
	b	Tower = AB, Building = CD AC = BE = 20 m CD = $20\sqrt{3} = 34.6\,m$	1
	c	DE = BE = 20 m AB = CE = CD- DE = = 34.6 – 20 = 14.6 m	2
26	a	Wage of 20th Worker = $X_{20} = l + \frac{d}{2} = 600 + \frac{10}{2} = 605$	2
	b	Median = $X_{23} = x_{20} + 3d = 605 + 30 = 635$	3
27	a	$X_1 + x_{21} = 140$ $x_{11} + x_{11} = 140$ $X_{11} = 70$	1
	b	Common difference = 6 Sequence : 10, 16, 22	2
	c	$S_{11} = 11 * x_6 = 11 * 40 = 440$	1
	d	20, 25, 30 .... x_6 = 20 + 5* 5 = 45 $S_{11} = 495$	2
28	a	Diameter of the sphere = side of the cube = 12 cm radius = 6 cm	1
	b	Total Surface Area = $4\pi r^2$ = 144π	2

		$Volume=\frac{4}{3}\pi r^3=288\pi$	
	c	H = 12 cm, r = 6 cm $V=\frac{1}{3}\pi r^2 h=\frac{1}{3}\pi x\, 6^2 x\, 12=144\pi$	2
29	a	16	1
	b	2,6,18....	1
	c	4	1
	d	-1	1
	e	0	1
	f	0	1