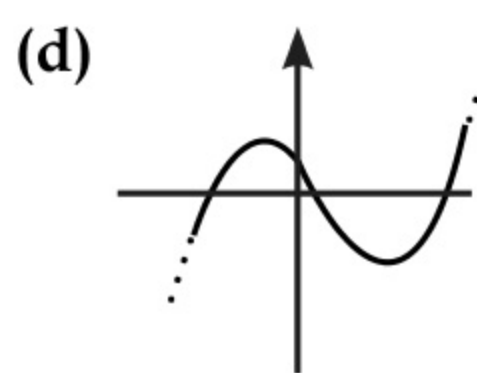
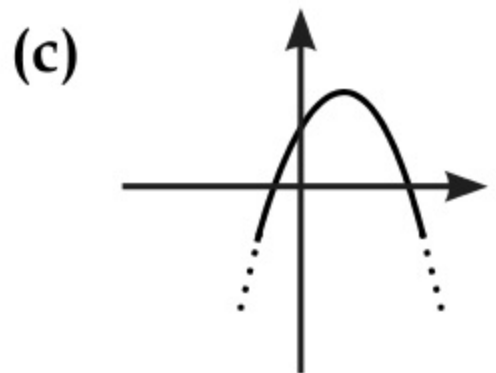
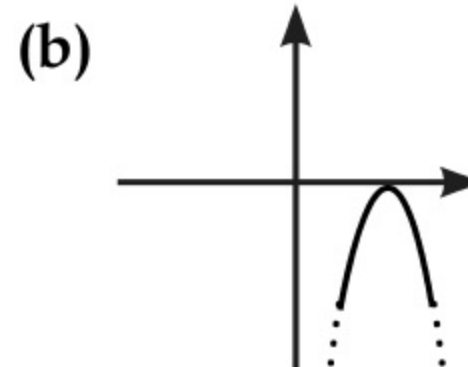
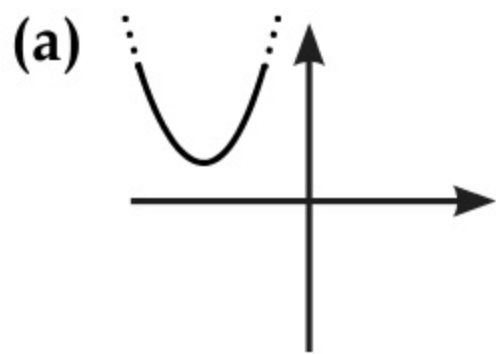


Sample Question Paper

Section 'A'

Question numbers 1 to 10 carry 1 mark each

1. If the HCF of 65 and 117 is expressible in the form $65m - 117$, find the value of m : 1
 2. Which of the following is not the graph of a quadratic polynomial?



3. The pair of equations $x + 2y + 5 = 0$ and $-3x - 6y + 1 = 0$ have : 1
 (a) a unique solution (b) exactly two solutions
 (c) infinitely many solutions (d) no solution 1

OR

AI If $\frac{1}{2}$ is a root of the equation $x^2 + kx - \frac{5}{4} = 0$, then the value of k is

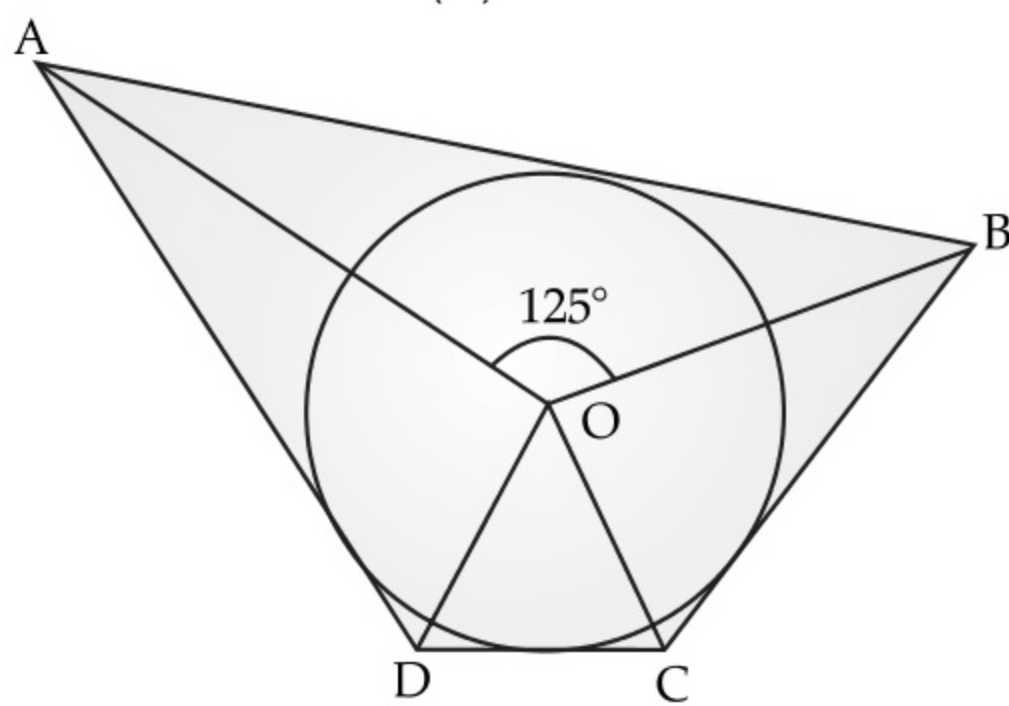
- (a) 2 (b) -2
 (c) $\frac{1}{2}$ (d) $-\frac{1}{2}$
4. The 21st term of the A.P., whose first two terms are -3 and 4 is : 1
 (a) 17 (b) 137
 (c) 143 (d) -143
5. The point which divides the line segment joining the points (7, -6) and (3, 4) in ratio 1:2 internally lies in the : 1
 (a) I quadrant (b) II quadrant
 (c) III quadrant (d) IV quadrant

6. It is given that $\Delta ABC \sim \Delta PQR$, with $\frac{BC}{QR} = \frac{1}{3}$. Then, $\frac{ar\Delta PRQ}{ar\Delta BCA}$ is equal to :

- (a) 9 (b) 3
 (c) $\frac{1}{3}$ (d) $\frac{1}{9}$ 1

7. In the given figure, if $\angle AOB = 125^\circ$, then $\angle COD$ is equal to :

- (a) 62.5° (b) 45°
 (c) 35° (d) 55°



8. If $\cos(\alpha + \beta) = 0$, then $\sin(\alpha - \beta)$ can be reduced to

- (a) $\cos \beta$ (b) $\cos 2\beta$
 (c) $\sin \alpha$ (d) $\sin 2\alpha$

1

1

9. Area of the largest triangle that can be inscribed in a semi-circle of radius ' r ' units is :

- (a) r^2 sq. units (b) $\frac{1}{2}r^2$ sq. units
 (c) $2r^2$ sq. units (d) $\sqrt{2}r^2$ sq. units

1

OR

A cylindrical pencil sharpened at one edge is the combination of :

- (a) a cone and a cylinder
 (b) frustum of a cone and a cylinder
 (c) a hemisphere and a cylinder
 (d) two cylinders

10. The abscissa of the point of intersection of the less than type and of the more than type cumulative frequency curves of a grouped data gives its :

- (a) mean (b) median
 (c) mode (d) All of these

1

Question numbers 11 to 20 carry 1 mark each

11. Find the least number that is divisible by all the numbers from 1 to 10 (both inclusive) :

1

12. If the zeroes of the quadratic polynomial $x^2 + (a + 1)x + b$ are 2 and -3 , then find the value of a and b .

1

13. Find the value of c for which the pair of equations $cx - y = 2$ and $6x - 2y = 3$ will have infinitely many solutions.

1

OR

Find the roots of the quadratic equation $\sqrt{3}x^2 - 2x - \sqrt{3} = 0$.

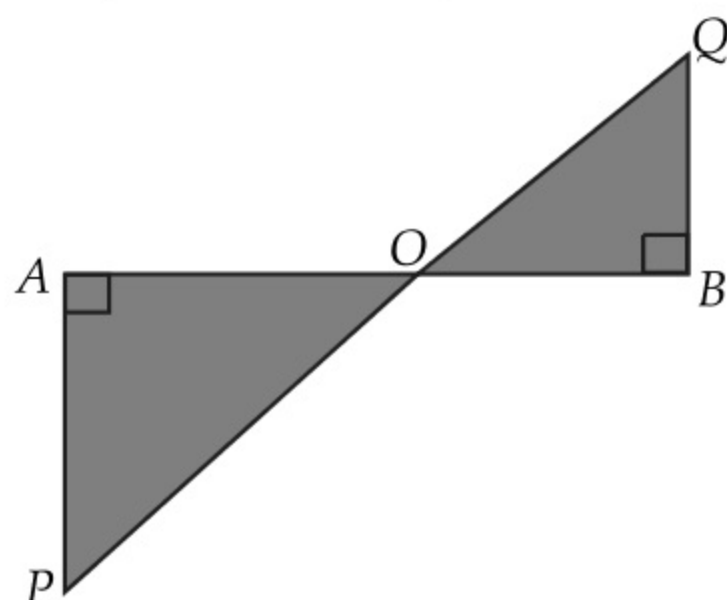
14. Which of the term of A.P. $5, 2, -1, \dots$ is -49 ?

1

15. If the distance between the points $(4, k)$ and $(1, 0)$ is 5, then what can be the possible values of k ?

1

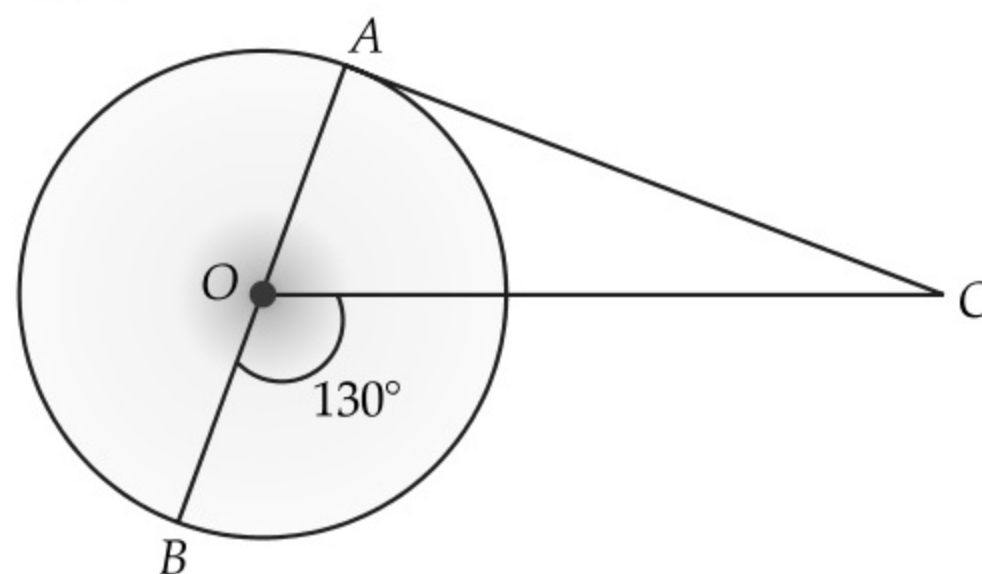
16. In the given figure, if $\angle A = 90^\circ, \angle B = 90^\circ, OB = 4.5$ cm, $OA = 6$ cm and $AP = 4$ cm, then find QB .



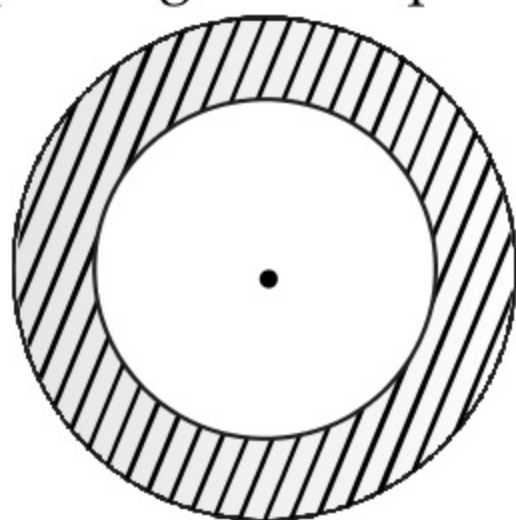
1

17. In the given figure, AOB is a diameter of the circle with centre O and AC is a tangent to the circle at A . If $\angle BOC = 130^\circ$, then find $\angle ACO$.

17. In the given figure, AOB is a diameter of the circle with centre O and AC is a tangent to the circle at A . If $\angle BOC = 130^\circ$, then find $\angle ACO$.



18. If $\cos 2A = \sin (A - 15^\circ)$, find A . 1
19. Two coins of diameter 2 cm and 4 cm respectively are kept one over the other as shown in the figure, find the area of the shaded ring shaped region in square cm. 1



- AI** 20. A die is thrown once. Find the probability of getting "at most 2." 1

Section 'B'

Question numbers 21 to 26 carry 2 marks each

21. What should be added to the polynomial $x^3 - 3x^2 + 6x - 15$ so that it is completely divisible by $x - 3$. 2

OR

Solve the following pair of linear equations by cross multiplication method :

$$x + 2y = 2$$

$$x - 3y = 7$$

22. Find the roots of the quadratic equation $6x^2 - x - 2 = 0$. 2
23. The fifth term of an A.P. is 26 and its 10th term is 51. Find the A.P. 2
24. If the point $P(x, y)$ is equidistant from the points $Q(a + b, b - a)$ and $R(a - b, a + b)$, then prove that $bx = ay$. 2
25. If θ be an acute angle and $5\operatorname{cosec} \theta = 7$, then evaluate $\sin \theta + \cos^2 \theta - 1$. 2
26. The data regarding the heights of 50 girls of class X of a school is given below :

Height (in cm)	120 - 130	130 - 140	140 - 150	150 - 160	160 - 170	Total
Number of girls	2	8	12	20	8	50

Change the above distribution to 'more than type' distribution. 2

OR

One card is drawn from a well shuffled deck of 52 cards. Find the probability of getting :

- (i) a non-face card,
 (ii) a black king.

Section 'C'

Question numbers 27 to 34 carry 3 marks each

27. Two unbiased coins are tossed simultaneously. Find the probability of getting :
- (i) atleast one head,
 (ii) atmost one head,
 (iii) no head. 3

28. Find the median of the following data :

Height (in cm)	Less than 120	Less than 140	Less than 160	Less than 180	Less than 200
Number of students	12	26	34	40	50

3

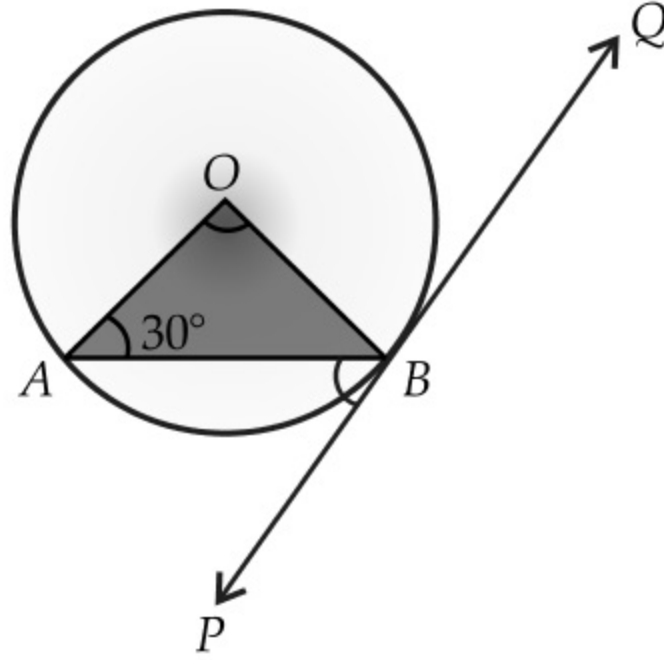
29. Find the area of the corresponding major sector of a circle of radius 28 cm and the central angle 45° . 3

OR

[AI] From a solid cylinder whose height is 8 cm and radius 6 cm, a conical cavity of same height and same base radius is hollowed out. Find the total surface area of the remaining solid. (Take $\pi = 3.14$)

30. Prove that $\cot \theta - \tan \theta = \frac{2 \cos^2 \theta - 1}{\sin \theta \cos \theta}$ 3

31. In the figure, PQ is a tangent to a circle with centre O . If $\angle OAB = 30^\circ$, find $\angle ABP$ and $\angle AOB$.



3

OR

ΔABC is a right angled at C . If p is the length of the perpendicular from C to AB and a, b, c are the lengths of the sides opposite $\angle A, \angle B$ and $\angle C$ respectively, then prove that $\frac{1}{p^2} = \frac{1}{a^2} + \frac{1}{b^2}$.

32. If $a \neq b \neq 0$, prove that the points $(a, a^2), (b, b^2)$ and $(0, 0)$ will not be collinear. 3

33. If the sum of the first n terms of an A.P. is $\frac{1}{2} [3n^2 + 7n]$, then find its n^{th} term. Hence write its 20^{th} term. 3

OR

Divide 27 into two parts such that the sum of their reciprocals is $\frac{3}{20}$.

34. Euclid's Division Algorithm to find the HCF of 726 and 275. 3

Section 'D'

Question numbers 35 to 40 carry 4 marks each

35. Draw the graphs of the following equations :

$$2x - y = 1 \text{ and } x + 2y = 13$$

Find the solution of the equations from the graph and shade the triangular region formed by the lines and the Y-axis. 4

OR

The sum of the squares of two consecutive odd numbers is 394. Find the numbers.

36. The sum of first 20 terms of an A.P. is 400 and sum of first 40 terms is 1600. Find the sum of its first 10 terms. 4

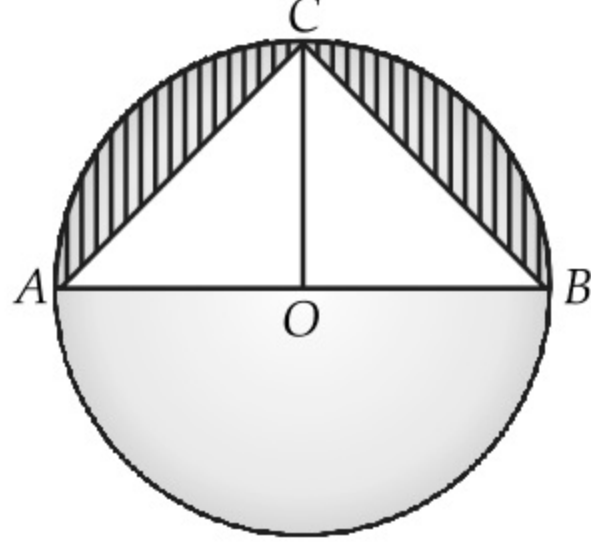
37. Construct an isosceles triangle whose base is 6 cm and altitude 4 cm. Then construct another triangle with sides are $\left(\frac{3}{4}\right)$ times the corresponding sides of the isosceles triangle. 4

38. Two poles of equal heights are standing opposite to each other on either side of the road which is 80 m wide. From a point in between them on the road, the angles of elevation of the top of poles are 60° and 30° respectively. Find the height of the poles and the distances of the point from the poles. 4

OR

The angle of elevation of the top of a hill from the foot of a tower is 60° and the angle of depression from the top of the tower of the foot of the hill is 30° . If tower is 50 meter high, find the height of the hill.

39. A round thali has 2 inbuilt triangular for serving vegetables and a separate semi-circular area for keeping rice or chapati. If radius of thali is 21 cm, find the area of the thali that is shaded in the figure.



4

OR

A toy is in the form of a cylinder of diameter $2\sqrt{2}$ m and height 3.5 m surmounted by a cone whose vertical angle is 90° . Find total surface area of the toy.

40. Find the median of the following data :

Class Interval	0 – 20	20 – 40	40 – 60	60 – 80	80 – 100	100 – 120	120 – 140
Frequency	6	8	10	12	6	5	3

How can we find the median graphically ?

4

