

JEE MAIN CONIC SECTIONS — CIRCLE: TANGENT, NORMAL AND CHORD OF CONTACT (JEE) — PYQS

Max. Marks: 36
Questions: 9

Section A (MCQ) — 6 questions

- Q.1** Let C be a circle having centre in the first quadrant and touching the x-axis at a distance of 3 units from the origin. If the circle C has an intercept of length $6\sqrt{3}$ on y-axis, then the length of the chord of the circle C on the line $x - y = 3$ is :

[JEE Main 2026 (Online) 6th April Evening Shift]

- (1) 8 (2) 6 (3) $6\sqrt{2}$ (4) $8\sqrt{2}$

Scan or tap for the full solution



- Q.2** Let the point P be the vertex of the parabola $y = x^2 - 6x + 12$. If a line passing through the point P intersects the circle $x^2 + y^2 - 2x - 4y + 3 = 0$ at the points R and S, then the maximum value of $(PR + PS)^2$ is :

[JEE Main 2026 (Online) 5th April Evening Shift]

- (1) 10 (2) 20 (3) 25 (4) 5

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- Q.3** Suppose that two chords, drawn from the point (1, 2) on the circle $x^2 + y^2 + x - 3y = 0$ are bisected by the y-axis. If the other ends of these chords are R and S, and the mid point of the line segment RS is (α, β) , then $6(\alpha + \beta)$ is equal to :

[JEE Main 2026 (Online) 4th April Morning Shift]

- (1) 1 (2) 3 (3) 4 (4) 6

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- Q.4** Let a circle pass through the origin and its centre be the point of intersection of two mutually perpendicular lines $x + (k-1)y + 3 = 0$ and $2x + k^2y - 4 = 0$. If the line $x - y + 2 = 0$ intersects the circle at the points A and B, then $(AB)^2$ is equal to :

[JEE Main 2026 (Online) 2nd April Evening Shift]

- (1) 10 (2) 27 (3) 18 (4) 34

Scan or tap for the full solution



- Q.5** Let $y = x$ be the equation of a chord of the circle C_1 (in the closed half-plane $x \geq 0$) of diameter 10 passing through the origin. Let C_2 be another circle described on the given chord as its diameter. If the equation of the chord of the circle C_2 , which passes through the point (2, 3) and is farthest from the center of C_2 , is $x + ay + b = 0$, then $a - b$ is equal to

[JEE Main 2026 (Online) 28th January Morning Shift]

- (1) -6 (2) 10 (3) 6 (4) -2

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- Q.6** Let PQ and MN be two straight lines touching the circle $x^2 + y^2 - 4x - 6y - 3 = 0$ at the points A and B respectively. Let O be the centre of the circle and $\angle AOB = \pi/3$. Then the locus of the point of intersection of the lines PQ and MN is :

[JEE Main 2026 (Online) 21st January Morning Shift]

- (1) $x^2 + y^2 - 18x - 12y - 25 = 0$
 (2) $x^2 + y^2 - 12x - 18y - 25 = 0$
 (3) $3(x^2 + y^2) - 12x - 18y - 25 = 0$
 (4) $3(x^2 + y^2) - 18x - 12y + 25 = 0$

Scan or tap for the full solution



Section B (Numerical) — 3 questions

- Q.7** Consider the circle $C: x^2 + y^2 - 6x - 8y - 11 = 0$. Let a variable chord AB of the circle C subtend a right angle at the origin. If the locus of the foot of the perpendicular drawn from the origin on the chord AB is the circle $x^2 + y^2 - \alpha x - \beta y - \gamma = 0$, then $\alpha + \beta + 2\gamma$ is equal to _____.

[JEE Main 2026 (Online) 8th April Evening Shift]

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- Q.8** Let the centre of the circle $x^2 + y^2 + 2gx + 2fy + 25 = 0$ be in the first quadrant and lie on the line $2x - y = 4$. Let the area of an equilateral triangle inscribed in the circle be $27\sqrt{3}$. Then the square of the length of the chord of the circle on the line $x = 1$ is _____.

[JEE Main 2026 (Online) 6th April Morning Shift]

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- Q.9** Let the line $x - y = 4$ intersect the circle $C: (x-4)^2 + (y+3)^2 = 9$ at the points Q and R. If $P(\alpha, \beta)$ is a point on C such that $PQ = PR$, then $(6\alpha + 8\beta)^2$ is equal to _____.

[JEE Main 2026 (Online) 6th April Evening Shift]

Scan or tap for the
full solution



ANSWER KEY

Section A (MCQ) — 6 questions

Ques.	1	2	3	4	5	6						
Ans.	3	2	2	3	4	3						

Section B (Numerical) — 3 questions

Ques.	7	8	9									
Ans.	18	80	18									