

PART 1 - MATHEMATICS

Topic : Conic sections

SECTION-A : (Maximum Marks : 8)

This section contains **TWO** questions.

Each question has **TWO** lists: **List-I** and **List-II**.

Four options are given representing matching of elements from List-I and List-II. **ONLY ONE** of these four options corresponds to a correct matching.

For each question, choose the option corresponding to the correct answer.

Answer to each question will be evaluated according to the following marking scheme :

Full Marks : +4 If **ONLY** the correct option is chosen;

Zero Marks : 0 If none of the options is chosen (i.e. the question is unanswered);

Negative Marks : -1 In all other cases.

1. Let P be the point on the parabola $y = x^2$ such that the slope of the tangent to the parabola at the point P is 4. Let Q be the point in the first quadrant lying on the circle $x^2 + y^2 = 2$ such that the slope of the tangent to the circle at the point Q is -1. Let R be the point in the first quadrant lying on the ellipse $x^2 + 4y^2 = 8$ such that the slope of the tangent to the ellipse at the point R is $-\frac{1}{2}$. Then the radius of the circle passing through the points P, Q and R is

[JEE Advanced 2026 Paper 1]

- (A) $\sqrt{10}$ (B) $\sqrt{5}$ (C) $\sqrt{\frac{5}{2}}$ (D) $2\sqrt{5}$

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2. Match each entry in **List-I** to the correct entry in **List-II** and choose the correct option.

[JEE Advanced 2026 Paper 1]

List-I		List-II	
P.	The circle with centre (1, 2) and touching the straight line $3x + 4y = 1$, passes through	1.	the point (1, 1)
Q.	The common tangent to the circle $x^2 + y^2 = 2$ and the parabola $y^2 = 8x$ with positive slope, passes through	2.	the point (7, 9)
R.	Let M be the end point of the latus rectum of the ellipse $3x^2 + 4y^2 = 48$ such that M lies in the first quadrant. Then the normal to the ellipse drawn at M passes through	3.	the point (3, 2)
S.	Let H be the hyperbola whose centre is at the origin, one of the foci is at (5, 0), and one directrix is $5x + 16 = 0$. Then H passes through	4.	the point (2, 5)
		5.	the point $(8, 3\sqrt{3})$

Space for Rough Work

PYQSide

- (A) $(P) \rightarrow (3), (Q) \rightarrow (4), (R) \rightarrow (1), (S) \rightarrow (2)$ (B) $(P) \rightarrow (3), (Q) \rightarrow (2), (R) \rightarrow (1), (S) \rightarrow (5)$
(C) $(P) \rightarrow (3), (Q) \rightarrow (2), (R) \rightarrow (4), (S) \rightarrow (5)$ (D) $(P) \rightarrow (4), (Q) \rightarrow (1), (R) \rightarrow (2), (S) \rightarrow (3)$

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SECTION-B : (Maximum Marks : 4)

This section contains **ONE** question.

The answer to each question is a **NON-NEGATIVE INTEGER**.

For each question, enter the correct integer corresponding to the answer in the place designated to enter the answer.

Answer to each question will be evaluated according to the following marking scheme :

Full Marks : +4 If **ONLY** the correct answer is entered;

Zero Marks : 0 In all other cases.

3. Consider the ellipse E given by $\frac{x^2}{18} + \frac{y^2}{12} = 1$. Let H be the hyperbola whose eccentricity is the reciprocal of the eccentricity of E and whose foci are the same as that of E. Let P and Q be the points of intersection of H and the parabola $\sqrt{5}y = x^2$ in the first quadrant. Let d be the distance between P and Q.

If a and b are the integers such that $d^2 = a + b\sqrt{5}$, then the value of $a - b$ is _____.

[JEE Advanced 2026 Paper 2]

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Space for Rough Work

JEE ADVANCED CONIC SECTIONS — MIXED CONICS
AND LOCUS PROBLEMS (JEE) — PYQS

Test Pattern : JEE (Advanced)

ANSWER KEY

SECTION-A																											
Ques.	1	2																									
Ans.	C	B																									

SECTION-B																											
Ques.	3																										
Ans.	18																										