

PART 1 - MATHEMATICS

Topic : Conic sections

SECTION-A : (Maximum Marks : 4)

This section contains **ONE** question.

Each question has **FOUR** options (A), (B), (C) and (D). **ONLY ONE** of these four options is the correct answer.

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 S denote the locus of the point of intersection of the pair of lines

$$4x - 3y = 12\alpha,$$

$$4\alpha x + 3\alpha y = 12,$$

where  $\alpha$  varies over the set of non-zero real numbers. Let T be the tangent to S passing through the points (p,0) and (0,q),  $q > 0$ , and parallel to the line  $4x - \frac{3}{\sqrt{2}}y = 0$ .

Then the value of pq is

[JEE Advanced 2025 Paper 2]

(A)  $-6\sqrt{2}$

(B)  $-3\sqrt{2}$

(C)  $-9\sqrt{2}$

(D)  $-12\sqrt{2}$

Scan or tap for the full solution



Space for Rough Work

**JEE ADVANCED CONIC SECTIONS — HYPERBOLA:  
TANGENT AND NORMAL (JEE) — PYQS**

Test Pattern : JEE (Advanced)

**ANSWER KEY**

| SECTION-A |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Ques.     | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ans.      | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |