

JEE MAIN MOTION IN A PLANE — RESOLUTION OF VECTORS, UNIT VECTORS — PYQS

Max. Marks: 12

Questions: 3

Section A (MCQ) — 1 question

Q.1 The position vector of a moving body at any instant of time is given as $\vec{r} = (5t^2\hat{i} - 5t\hat{j})$ m. The magnitude and direction of velocity at $t = 2$ s is,

[JEE Main 2025 (Online) 24th January Evening Shift]

- (1) $5\sqrt{17}$ m/s, making an angle of $\tan^{-1} 4$ with
-ve Y axis
- (2) $5\sqrt{15}$ m/s, making an angle of $\tan^{-1} 4$ with
+ve X axis
- (3) $5\sqrt{17}$ m/s, making an angle of $\tan^{-1} 4$ with
+ve X axis
- (4) $5\sqrt{15}$ m/s, making an angle of $\tan^{-1} 4$ with
-ve Y axis

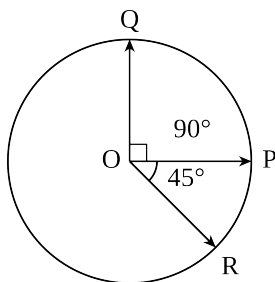
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full solution



Section B (Numerical) — 2 questions

Q.2 Three vectors $\vec{OP}$, $\vec{OQ}$ and $\vec{OR}$ each of magnitude A are acting as shown in figure. The resultant of the three vectors is $A\sqrt{x}$. The value of x is _____.

[JEE Main 2024 (Online) 8th April Morning Shift]



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Q.3 A vector has magnitude same as that of $\vec{A} = 3\hat{i} + 4\hat{j}$ and is parallel to $\vec{B} = 4\hat{i} + 3\hat{j}$. The x and y components of this vector in first quadrant are x and 3 respectively where x = _____.

[JEE Main 2024 (Online) 30th January Evening Shift]

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ANSWER KEY

Section A (MCQ) — 1 question

[illegible]

Section B (Numerical) — 2 questions

Ques.	2	3								
Ans.	3	4								