

JEE MAIN VECTOR ALGEBRA — VECTOR TRIPLE PRODUCT AND VECTOR EQUATIONS (JEE) — PYQS

Max. Marks: 16

Questions: 4

Section A (MCQ) — 3 questions

Q.1 Let $\vec{a} = 4\hat{i} - \hat{j} + 3\hat{k}$, $\vec{b} = 10\hat{i} + 2\hat{j} - \hat{k}$ and a vector $\vec{c}$ be such that $2(\vec{a} \times \vec{b}) + 3(\vec{b} \times \vec{c}) = \vec{0}$. If $\vec{a} \cdot \vec{c} = 15$, then $\vec{c} \cdot (\hat{i} + \hat{j} - 3\hat{k})$ is equal to :

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

- (1) -6 (2) -5 (3) -4 (4) -3

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Q.2 Let $\vec{a} = \sqrt{7}\hat{i} + \hat{j} - \hat{k}$ and $\vec{b} = \hat{j} + 2\hat{k}$. If $\vec{r}$ is a vector such that $\vec{r} \times \vec{a} + \vec{a} \times \vec{b} = \vec{0}$ and $\vec{r} \cdot \vec{a} = 0$, then $|3\vec{r}|^2$ is equal to: [JEE Main 2026 (Online) 5th April Morning Shift]

(1) 44 (2) 54 (3) 86 (4) 132

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Q.3 Let $\vec{a} = -\hat{i} + 2\hat{j} + 2\hat{k}$, $\vec{b} = 8\hat{i} + 7\hat{j} - 3\hat{k}$ and $\vec{c}$ be a vector such that $\vec{a} \times \vec{c} = \vec{b}$. If $\vec{c} \cdot (\hat{i} + \hat{j} + \hat{k}) = 4$, then $|\vec{a} + \vec{c}|^2$ is equal to :

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

- (1) 30 (2) 33 (3) 27 (4) 35

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Section B (Numerical) — 1 question

Q.4 If $\vec{a} = \hat{i} + \hat{j} + \hat{k}$, $\vec{b} = \hat{j} - \hat{k}$ and $\vec{c}$ be three vectors such that $\vec{a} \times \vec{c} = \vec{b}$ and $\vec{a} \cdot \vec{c} = 3$, then $\vec{c} \cdot (\vec{a} - 2\vec{b})$ is equal to _____.

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

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ANSWER KEY

Section A (MCQ) — 3 questions

Ques.	1	2	3								
Ans.	2	1	3								

Section B (Numerical) — 1 question

Ques.	4										
Ans.	3										