



Class 12 Mathematics | Vector Algebra

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. The magnitude of $2\mathbf{i}-3\mathbf{j}+6\mathbf{k}$ is:

A. $\sqrt{13}$ B. 7 C. 49 D. 11

2. A unit vector along $3\mathbf{i}+4\mathbf{j}$ is:

A. $3\mathbf{i}+4\mathbf{j}$ B. $(4\mathbf{i}+3\mathbf{j})/5$ C. $(3\mathbf{i}+4\mathbf{j})/7$ D. $(3\mathbf{i}+4\mathbf{j})/5$

3. If $\mathbf{a}=\mathbf{i}+2\mathbf{j}$ and $\mathbf{b}=3\mathbf{i}-\mathbf{j}$, then $\mathbf{a}\cdot\mathbf{b}$ equals:

A. 5 B. -1 C. 7 D. 1

4. The dot product of perpendicular vectors is:

A. 0 B. Their magnitudes' product C. -1 D. 1

5. The value of $\mathbf{i}\times\mathbf{j}$ is:

A. $\mathbf{i}$ B. 0 C. $\mathbf{k}$ D. $-\mathbf{k}$

6. The value of $\mathbf{j}\times\mathbf{i}$ is:

A. 0 B. $-\mathbf{k}$ C. $\mathbf{j}$ D. $\mathbf{k}$

7. If magnitudes of $\mathbf{a}, \mathbf{b}$ are 2, 3 and angle is 60° , $\mathbf{a}\cdot\mathbf{b}$ is:

A. 0 B. $3\sqrt{3}$ C. 3 D. 6

8. If magnitudes of $\mathbf{a}, \mathbf{b}$ are 2, 3 and angle is 30° , magnitude of $\mathbf{a}\times\mathbf{b}$ is:

A. 0 B. 6 C. $3\sqrt{3}$ D. 3

9. The area of a triangle with side vectors $\mathbf{a}, \mathbf{b}$ is:

A. $\mathbf{a}\cdot\mathbf{b}$

B. $\frac{1}{2}$ magnitude of $\mathbf{a}\times\mathbf{b}$

C. $\frac{1}{2}\mathbf{a}\cdot\mathbf{b}$

D. Magnitude of $\mathbf{a}\times\mathbf{b}$

10. The scalar projection of $3\mathbf{i}+4\mathbf{j}$ on $\mathbf{i}$ is:

A. 3 B. 5 C. 4 D. 7

11. If $\mathbf{a}=2\mathbf{i}+\mathbf{j}$ and $\mathbf{b}=\mathbf{i}-2\mathbf{j}$, the angle between them is:

A. 45° B. 180° C. 90° D. 0°

12. If $\mathbf{a}$ is a unit vector, $\mathbf{a}\cdot\mathbf{a}$ equals:

A. 0 B. 2 C. -1 D. 1

13. The vector from A(1,2,3) to B(4,0,5) is:

A. $3\mathbf{i}-2\mathbf{j}+2\mathbf{k}$

B. $5\mathbf{i}+2\mathbf{j}+8\mathbf{k}$

C. $3\mathbf{i}+2\mathbf{j}+2\mathbf{k}$

D. $-3\mathbf{i}+2\mathbf{j}-2\mathbf{k}$

14. If nonzero $\mathbf{a}, \mathbf{b}$ are parallel, $\mathbf{a}\times\mathbf{b}$ is:

A. Zero vector B. Unit vector C. $\mathbf{a}-\mathbf{b}$ D. $\mathbf{a}+\mathbf{b}$

15. For $\mathbf{a}=\mathbf{i}+\mathbf{j}$ and $\mathbf{b}=\mathbf{i}-\mathbf{j}$, magnitude of $\mathbf{a}+\mathbf{b}$ is:

A. $\sqrt{2}$ B. 2 C. 0 D. 4

ANSWER KEY — check after completing all 15 questions

1.B 2.D 3.D 4.A 5.C 6.B 7.C 8.D 9.B 10.A 11.C 12.D 13.A 14.A 15.B

Original exam-style practice • Reference notes: www.physics.guru/cbse-practice-papers/ • Not an official paper

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