



Class 11 Physics | Motion In A Plane

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

1. The magnitude of vector $3\mathbf{i}+4\mathbf{j}$ is:

A. 5 B. 25 C. 1 D. 7

2. Two perpendicular vectors have magnitudes 6 and 8. Their resultant has magnitude:

A. 10 B. 48 C. 14 D. 2

3. A vector of magnitude 10 makes 60° with $+x$. Its x-component is:

A. 5 B. 10 C. $5\sqrt{3}$ D. $10\sqrt{3}$

4. The dot product of two perpendicular nonzero vectors is:

A. -1 B. 0 C. 1 D. Product of magnitudes

5. Two equal vectors of magnitude A at 120° have resultant magnitude:

A. $\sqrt{3}A$ B. 2A C. 0 D. A

6. A projectile has initial horizontal speed 12 m/s. Ignoring air drag, its horizontal speed after 2 s is:

A. 6 m/s B. 12 m/s C. 24 m/s D. 0

7. At the highest point of an oblique projectile:

- A. Total velocity is zero
- B. Acceleration is zero
- C. Vertical velocity is zero
- D. Horizontal acceleration equals g

8. A projectile is launched at 20 m/s and 30° on level ground. Flight time ($g=10$) is:

A. 4 s B. $\sqrt{3}$ s C. 1 s D. 2 s

9. For the same launch, maximum height is:

A. 20 m B. 15 m C. 10 m D. 5 m

10. For fixed speed on level ground, maximum range occurs at:

A. 30° B. 45° C. 60° D. 90°

11. Which launch angles give equal ranges at the same speed on level ground?

- A. 25° and 55° B. 30° and 45°
- C. 25° and 65° D. 40° and 60°

12. A body moves in a circle of radius 2 m at 6 m/s. Centripetal acceleration is:

A. 12 m/s^2 B. 18 m/s^2 C. 36 m/s^2 D. 3 m/s^2

13. In uniform circular motion, acceleration is directed:

- A. Along velocity
- B. Away from the centre
- C. Opposite velocity
- D. Toward the centre

14. A wheel turns at angular speed 4 rad/s. Speed of a point 0.5 m from its axis is:

A. 8 m/s B. 2 m/s C. 4.5 m/s D. 0.125 m/s

15. A river flows east at 3 m/s; a boat moves north at 4 m/s relative to water. Ground speed is:

A. 1 m/s B. 7 m/s C. 5 m/s D. 12 m/s

ANSWER KEY — check after completing all 15 questions

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