

Yakeen NEET 2.0 2026

Physics by MR Sir

DPP: 1

Motion in a Plane

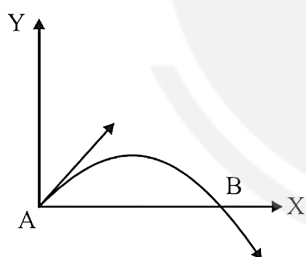
Q1 In projectile motion, which of the following remains same ?

- (A) Speed
- (B) Velocity
- (C) Acceleration
- (D) Only magnitude of acceleration

Q2 Acceleration of a particle under projectile motion at the highest point of its trajectory is:

- (A) g
- (B) Zero
- (C) Less than g
- (D) Dependent upon projection velocity

Q3 The velocity of a projectile at the initial point A is $(2\hat{i} + 3\hat{j})\text{ m/s}$. Its velocity (in m/s) at point B is



- (A) $-2\hat{i} - 3\hat{j}$
- (B) $-2\hat{i} + 3\hat{j}$
- (C) $2\hat{i} - 3\hat{j}$
- (D) $2\hat{i} + 3\hat{j}$

Q4 A ball is projected with a velocity 10 ms^{-1} at an angle of 60° with the vertical direction. Its speed at the highest point of its trajectory will be

- (A) 5 m s^{-1}
- (B) 10 m s^{-1}
- (C) Zero
- (D) $5\sqrt{3}\text{ ms}^{-1}$

Q5 Two bodies are projected with the same velocity, if one is projected at an angle of 30° and the other at an angle of 60° to the horizontal, the ratio of the maximum heights reached is:

- (A) 3 : 1
- (B) 1 : 3
- (C) 1 : 2
- (D) 2 : 1

Q6 When do we get maximum height in a simple projectile motion?

- (A) When $\theta = 45^\circ$
- (B) When $\theta = 60^\circ$
- (C) When $\theta = 90^\circ$
- (D) When $\theta = 0^\circ$

Q7 Two bodies are thrown up at angles of 45° and 60° respectively, with the horizontal. If both bodies attain same vertical height, then the ratio of velocities with which these are thrown is:

- (A) $\sqrt{\frac{2}{3}}$
- (B) $\frac{2}{\sqrt{3}}$
- (C) $\sqrt{\frac{3}{2}}$
- (D) $\frac{\sqrt{3}}{2}$

Q8 If a projectile is fired at an angle θ with the vertical with velocity u , then maximum height attained is given by

- (A) $\frac{u^2 \cos \theta}{2g}$
- (B) $\frac{u^2 \sin^2 \theta}{2g}$
- (C) $\frac{u^2 \sin^2 \theta}{g}$
- (D) $\frac{u^2 \cos^2 \theta}{2g}$

Q9



If angles of projection are $(\frac{\pi}{4} + \theta)$ and $(\frac{\pi}{4} - \theta)$ where $\theta < \frac{\pi}{4}$, then the ratio of horizontal ranges described by the projectile is (projection speed is same) ;

- (A) 2 : 1 (B) 1 : 2
(C) 1 : 1 (D) 2 : 3

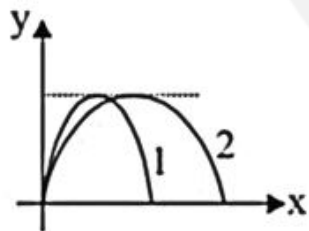
Q10 For angle of projection 20° , range of a projectile is R . For the same range, another angle of projection should be

- (A) 40°
(B) 50°
(C) 60°
(D) 70°

Q11 The motion of a projectile is described by the equation $y = ax - bx^2$. The range of projectile is

- (A) a^2/b^2
(B) $a/2b$
(C) a/b
(D) None of the above

Q12 Trajectories of two projectiles are shown in figure. Let T_1 and T_2 be the time of flight and u_1 and u_2 their speeds of projection. Then



- (A) $T_2 > T_1$
(B) $T_1 = T_2$
(C) Both (2) and (4)
(D) $u_1 < u_2$



Answer Key

Q1 (C)

Q2 (A)

Q3 (C)

Q4 (D)

Q5 (B)

Q6 (C)

Q7 (C)

Q8 (D)

Q9 (C)

Q10 (D)

Q11 (C)

Q12 (C)



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