

Laws of Motion Physics Practice

Physics · Answer Key · 10 Questions

1. Inertia of an object is directly dependent on its:

- A) Impulse
- B) Momentum
- C) Mass**
- D) Density

2. A body of mass 6 kg changes velocity from 3 m/s to 7 m/s. What is the change in momentum?

- A) 48 N-s
- B) 24 N-s**
- C) 36 N-s
- D) 12 N-s

3. If momentum $p = 2 + 3t^2$, what is the force acting on the particle at $t = 3s$?

- A) 18 N
- B) 54 N**
- C) 60 N
- D) 15 N

4. A body is acted upon by balanced forces if:

- A) It is at rest only
- B) It is moving with constant speed
- C) It is not accelerating**
- D) Even number of forces are acting

5. A 72 dyne force is inclined at 60 degrees to the horizontal. Find the acceleration of a 9g mass moving horizontally.

- A) 5 cm/s²
- B) 4 cm/s²**
- C) 8 cm/s²
- D) 3 cm/s²

6. A man of mass 60 kg stands on a conveyor belt accelerating at 1 m/s². If $g = 10$ m/s², what is the net force on the man?

- A) 60 N**
- B) 120 N
- C) 600 N
- D) 0 N

7. A ball of mass m moving with velocity v is stopped by a player. What is the impulse applied?

- A) $-mv$
- B) $+mv$
- C) 0
- D) $-2mv$

8. A body of mass 5 kg is acted upon by perpendicular forces 8 N and 6 N. What is the magnitude of acceleration?

- A) 3 m/s^2
- B) 2 m/s^2
- C) 5 m/s^2
- D) 1 m/s^2

9. A bullet of mass 0.1 kg is fired from a 50 kg gun at 100 m/s. What is the recoil velocity of the gun?

- A) 0.05 m/s
- B) 0.5 m/s
- C) 0.1 m/s
- D) 0.2 m/s

10. A force of 50 N acts on a 3 kg body, changing its speed from 2 m/s to 3.5 m/s in 2s. This is a constant force in the direction of motion. What is the magnitude?

- A) 0.18 N
- B) 0.32 N
- C) 0.64 N
- D) 2.25 N