

4 Lecture - PHY101

Important Mcqs

Which of the following is Newton's first law of motion?

- a. $F = ma$
- b. Every action has an equal and opposite reaction
- c. An object at rest will remain at rest unless acted upon by an external force
- d. The force of gravity is proportional to the mass of the objects involved.

Answer: c. An object at rest will remain at rest unless acted upon by an external force.

What is the SI unit of force?

- a. Meter (m)
- b. Second (s)
- c. Newton (N)
- d. Kilogram (kg)

Answer: c. Newton (N)

What is the relationship between force and acceleration?

- a. Directly proportional
- b. Inversely proportional
- c. No relationship
- d. Exponential relationship

Answer: a. Directly proportional

What is Newton's second law of motion?

- a. An object at rest will remain at rest unless acted upon by an external force.
- b. For every action, there is an equal and opposite reaction.

c. The acceleration of an object is directly proportional to the net force acting on the object and inversely proportional to its mass.

d. The force of gravity is proportional to the mass of the objects involved.

Answer: c. The acceleration of an object is directly proportional to the net force acting on the object and inversely proportional to its mass.

Which of the following is an example of Newton's third law of motion?

a. A rocket launches into space.

b. A book resting on a table.

c. A person walking on the ground.

d. A ball rolling down a hill.

Answer: c. A person walking on the ground.

What is the difference between weight and mass?

a. Weight is a measure of the amount of matter in an object, while mass is the force exerted on an object due to gravity.

b. Weight is a measure of the force exerted on an object due to gravity, while mass is a measure of the amount of matter in an object.

c. Weight and mass are the same thing.

d. Weight is a measure of the volume of an object, while mass is a measure of the force exerted on an object.

Answer: b. Weight is a measure of the force exerted on an object due to gravity, while mass is a measure of the amount of matter in an object.

What is the force required to accelerate a 5 kg object at a rate of 10 m/s²?

a. 0.5 N

b. 5 N

c. 10 N

d. 50 N

Answer: d. 50 N (using the formula $F = ma$, where F is the force, m is the mass, and a is the acceleration)

What is the force of gravity acting on a 50 kg object on Earth?

- a. 9.8 N
- b. 98 N
- c. 500 N
- d. 980 N

Answer: d. 980 N (using the formula $F = mg$, where F is the force, m is the mass, and g is the acceleration due to gravity, which is approximately 9.8 m/s^2)

What is the weight of a 100 kg object on the Moon, where the acceleration due to gravity is approximately 1.6 m/s^2 ?

- a. 100 N
- b. 160 N
- c. 1000 N
- d. 1600 N

Answer: b. 160 N (using the formula $F = mg$, where F is the weight, m is the mass, and g is the acceleration due to gravity on the Moon)