

# MASS-WEIGHT-SET-4-QP

- 1 What is the weight of an object?
- A the force of gravity on the object
  - B the gravitational potential energy of the object
  - C the internal energy of the object
  - D the mass of the object
- 2 A spaceship approaches the Earth from deep space. Near the Earth, a force on the spaceship causes it to have weight. This causes it to change its speed and direction.

Which type of force causes the spaceship's weight, and which property of the spaceship resists its change in speed and direction?

	force that causes weight	property that resists change in speed and direction
A	gravitational	mass
B	gravitational	volume
C	magnetic	mass
D	magnetic	volume

- 3 An astronaut on the Moon weighs less than on Earth.

What is the reason for this difference, and how does his mass on the Moon compare with his mass on Earth?

	reason for weight difference	mass on Moon
A	the Moon has a weaker gravitational field	less than on Earth
B	the Moon has a weaker gravitational field	same as on Earth
C	the Moon has a weaker magnetic field	less than on Earth
D	the Moon has a weaker magnetic field	same as on Earth

- 4 Which object has the greatest weight?
- A an object of mass 10 kg in a 15 N/kg gravitational field
  - B an object of mass 15 kg in a 13 N/kg gravitational field
  - C an object of mass 20 kg in a 9.0 N/kg gravitational field
  - D an object of mass 50 kg in a 3.0 N/kg gravitational field

5 A body of mass  $m$  has a weight  $W$  in a location where the gravitational field strength is  $g$ .

Which statement about these quantities is correct?

- A  $m$  and  $W$  are both forces.
- B  $m$  and  $W$  are both vector quantities.
- C  $m$  and  $W$  are related by the equation  $\frac{W}{m} = g$ .
- D  $m$  and  $W$  have the same unit.

6 Which quantity is a force due to a gravitational field?

- A density
- B mass
- C weight
- D volume

7 A box is placed on the ground. An upward force of 15 N is needed to lift the box at constant speed.

Which row correctly describes the box?

	mass of the box	weight of the box
A	1.5 kg	15 N
B	15 N	1.5 kg
C	15 N	150 kg
D	150 kg	15 N

8 A body is moved from place X to place Y where the gravitational field strength is different.

What happens to its mass and to its weight due to the move?

	mass	weight
A	changes	changes
B	changes	stays the same
C	stays the same	changes
D	stays the same	stays the same

9 Four students make statements about the mass of an object.

Which statement is correct?

- A The mass of an object depends on the gravitational field which acts on the object.
- B The mass of an object divided by its weight is equal to the acceleration with which it falls freely.
- C The mass of an object increases when the temperature of the object increases.
- D The mass of an object resists change in motion of the object.

10 On Earth, a spring stretches by 5.0 cm when a mass of 3.0 kg is suspended from one end.

The gravitational field strength on the Moon is  $\frac{1}{6}$  of that on Earth.

Which mass, on the Moon, would stretch the spring by the same extension?

- A 0.50 kg
- B 3.0 kg
- C 5.0 kg
- D 18 kg

11 A mass of 6.0 kg rests on the surface of a planet.

On this planet,  $g = 20 \text{ N/kg}$ .

What is the weight of the object?

- A 0.30 N
- B 0.60 N
- C 60 N
- D 120 N