

Question 1

The acceleration of free fall on the Moon has one sixth of its value on the Earth.

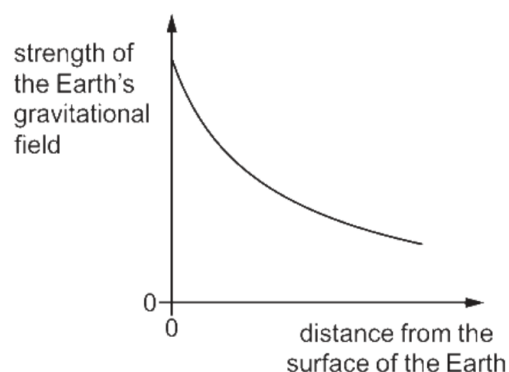
On the Earth, an astronaut's mass is measured as 60 kg.

Which row gives the mass and weight of the astronaut on the Earth and on the Moon?

	Earth		Moon	
	mass / kg	weight / N	mass / kg	weight / N
A	60	6.1	10	1.0
B	60	6.1	60	6.1
C	60	590	10	16
D	60	590	60	98

Question 2

The graph shows how the strength of the Earth's gravitational field varies as the distance from the Earth's surface increases.



Which row describes the effect that this has on the mass and on the weight of an object as it moves further away from the Earth's surface?

	mass of object	weight of object
A	decreases	decreases
B	decreases	unchanged
C	unchanged	decreases
D	unchanged	unchanged

Question 3 Removed**Question 4**

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

Question 5

An object of mass 2.0 kg is taken from the Earth, where the gravitational field strength is 10 N/kg, to the Moon, where the gravitational field strength is 1.6 N/kg.

Which row is correct?

	weight on the Earth/N	weight on the Moon/N
A	0.20	0.80
B	0.20	3.2
C	20	0.80
D	20	3.2

Question 6

An object is on the surface of the Earth.

Which statement describes the weight of the object?

- A** the quantity of material that the object contains
B the quantity of space that the object takes up
C the gravitational force acting on the object
D the object's resistance to a change in its motion

Question 7

On the Moon, all objects fall with the same acceleration.

Which statement explains this?

- A** On the Moon, all objects have the same weight.
- B** The Moon has a smaller gravitational field strength than the Earth.
- C** The weight of an object is directly proportional to its mass.
- D** The weight of an object is inversely proportional to its mass.

Question 8

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

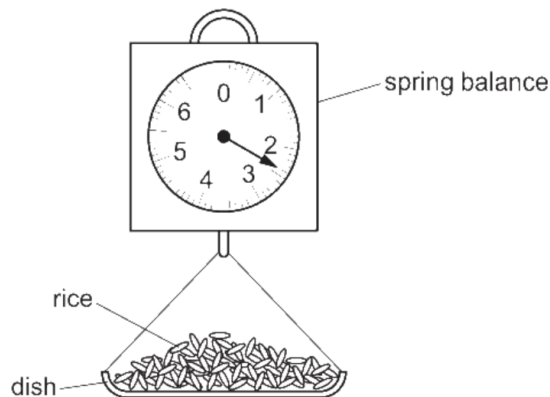
The gravitational field strength on the Moon is $\frac{1}{6}$ of that on the Earth.

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

Question 9

A shopkeeper pours rice into a dish that hangs from a spring balance. He records the reading.



A customer buys some pasta. The shopkeeper notices that the reading on the spring balance, with just pasta in the dish, is the same as it was with just rice in the dish.

Which quantity **must** be the same for the rice and for the pasta?

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

Question 10

Which statement about mass or weight is not correct?

- A Masses can be compared using a balance.
- B Mass is a force.
- C Weights can be compared using a balance.
- D Weight is a force.

Question 11

An astronaut of mass 80 kg is standing on a planet with gravitational field strength $g = 3.8\text{N/kg}$.

What is the weight of the astronaut on this planet?

- A 780N B 300N C 210N D 21N