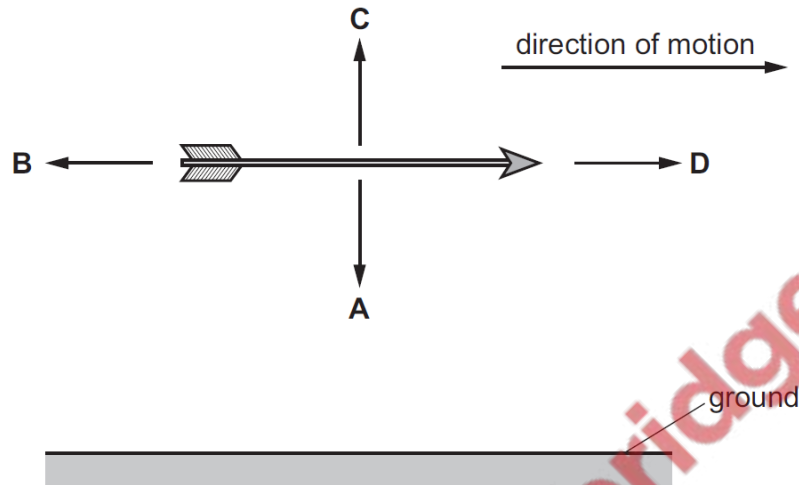


## Mass and Weight – 2019 June

1. 0625/11/M/J/19/No.4

An arrow travels horizontally in a straight line at constant speed.

In which direction does the weight act?



2. 0625/11/M/J/19/No.5

Two rectangular blocks consist of different materials.

Four different methods are suggested to compare the two masses.

- 1 Compare the accelerations with which they fall freely.
- 2 Compare the values of their lengths  $\times$  breadths  $\times$  heights.
- 3 Hang each in turn from the same spring. Compare the extensions.
- 4 Place one in the right-hand pan of a beam balance and the other in the left-hand pan.

Which methods give a comparison of the two masses?

- A** 1, 2 and 3      **B** 1 and 2 only      **C** 3 and 4 only      **D** 4 only

3. 0625/12/M/J/19/No.4

Which row contains two correct statements about the mass and the weight of an object?

	mass of an object	weight of an object
<b>A</b>	is measured using a measuring cylinder	is measured using a balance
<b>B</b>	is the gravitational force exerted on the object	is the amount of matter in the object
<b>C</b>	is measured in newtons	is measured in kilograms
<b>D</b>	is the same everywhere	can vary from place to place

4. 0625/12/M/J/19/No.5

The table gives approximate values of the acceleration due to gravity and the atmospheric pressure on three planets.

	Earth	Venus	Mars
<u>acceleration due to gravity</u> $\text{m/s}^2$	10	9	4
atmospheric pressure /kPa	100	9000	1

A body has a mass of 10 kg on Earth.

Which statement about the weight of the body is correct?

- A The weight is greatest on Earth.
- B The weight is greatest on Mars.
- C The weight is greatest on Venus.
- D The weight is the same on each planet.

5. 0625/13/M/J/19/No.4

An object which has a mass of 600 kg is on the planet Mars.

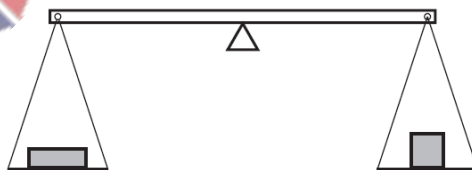
The acceleration due to gravity on Mars is  $4.0 \text{ m/s}^2$ .

What is the weight of the object on Mars?

- A 60 N
- B 150 N
- C 2400 N
- D 6000 N

6. 0625/13/M/J/19/No.5

Two objects are placed on a balance, one on each side:



Which properties of the objects can be compared using the balance?

- A weight, mass and volume
- B weight and mass only
- C volume and density
- D density only

7. 0625/21/M/J/19/No.4

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
<b>A</b>	changes	changes
<b>B</b>	changes	stays the same
<b>C</b>	stays the same	changes
<b>D</b>	stays the same	stays the same

8. 0625/22/M/J/19/No.4

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.

9. 0625/12/F/M/19/No.4

An astronaut in a space station orbits above the Earth.

In the space station, the acceleration due to gravity is  $7.5 \text{ m/s}^2$ .

On Earth, the acceleration due to gravity is  $10 \text{ m/s}^2$ .

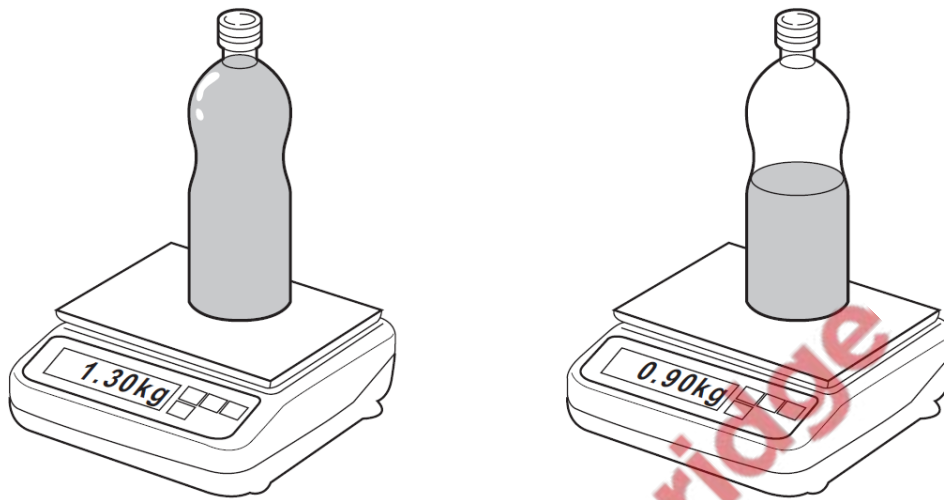
Which statement about the astronaut's mass and weight in the space station is correct?

	mass of astronaut	weight of astronaut
<b>A</b>	same as on the Earth	less than on the Earth
<b>B</b>	same as on the Earth	greater than on the Earth
<b>C</b>	lower than on the Earth	less than on the Earth
<b>D</b>	lower than on the Earth	greater than on the Earth

10. 0625/12, 22/F/M/19/No.5

The mass of a full bottle of cooking oil is 1.30 kg.

When exactly half of the oil has been used, the mass of the bottle plus the remaining oil is 0.90 kg.



What is the mass of the empty bottle?

- A 0.40 kg      B 0.50 kg      C 0.65 kg      D 0.80 kg

11. 0625/22/F/M/19/No.4

The gravitational field strength on the Moon is less than on the Earth.

Which of these is **different** when done on the Moon compared with when done on the Earth?

- A the gravitational potential energy gained by a stone lifted through the same vertical height  
B the kinetic energy gained by a ball when hit with the same force for the same period of time  
C the momentum gained by a bullet when fired from the same gun  
D the work done in accelerating a stone from rest to the same speed