Mass and Weight – 2023 IGCSE Physics 0625

1. Nov/2023/Paper_ 0625/11/No.3

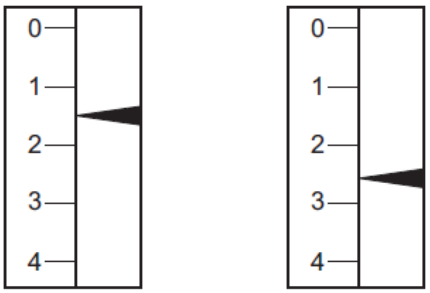
An object weighs 19 N on a planet where the acceleration of free fall is 3.8 m/s^2.

What is the mass of the object?

A 0.20 kg **B** 1.9 kg **C** 5.0 kg **D** 72 kg

2. Nov/2023/Paper_ 0625/11/No.4

An object is suspended from a spring balance on the Earth. The same object is suspended from the same spring balance on another planet.



Which statement explains the difference between the two readings?

A Both the mass and the weight of the object are greater on the other planet.

B The mass of the object is greater on the other planet than on the Earth, but the weight is unchanged.

C The spring stretches more easily when on the other planet.

D The weight of the object is greater on the other planet than on the Earth, but the mass is unchanged.

3. Nov/2023/Paper_ 0625/12/No.4

A person steps onto a bathroom scale.

The bathroom scale records both mass and weight.

Which row shows the readings on the bathroom scale?

	mass	weight
A	60 N	590 kg
B	60 kg	590 N
C	590 kg	60 N
D	590 N	60 kg

4. Nov/2023/Paper_ 0625/13/No.3

A vehicle sent to explore the surface of Mars has a mass of 200 kg.

The acceleration of free fall on Mars is 3.7 m/s^2.

What is the weight of the vehicle on Mars?

A 20 N **B** 54 N **C** 740 N **D** 2000 N

5. Nov/2023/Paper_ 0625/13/No.4

A student writes about mass and weight.

Which statement is correct?

A A ship which is floating has mass but no weight.

B Mass is a scientific word that means the same as weight.

C Mass is measured in newtons.

D The mass of an astronaut is the same on the Moon as on the Earth.

6. Nov/2023/Paper_ 0625/21/No.4

The table shows the mass and volume of three different liquids, X, Y and Z.

liquid	mass / g	volume / cm^3
X	120	200
Y	80	67
Z	100	120

The liquids are placed in the same container. The liquids do not mix.

Which liquid is at the top of the container and which liquid is at the bottom?

	liquid at top	liquid at bottom
A	X	Y
B	X	Z
C	Y	X
D	Y	Z

7. Nov/2023/Paper_ 0625/33/No.3(a)

The mass of a glass bottle is 0.18 kg.

(a) Calculate the weight of the bottle.

weight = ... N [2]

8. June/2023/Paper_0625/11/No.4

A space rocket travels to the Moon.

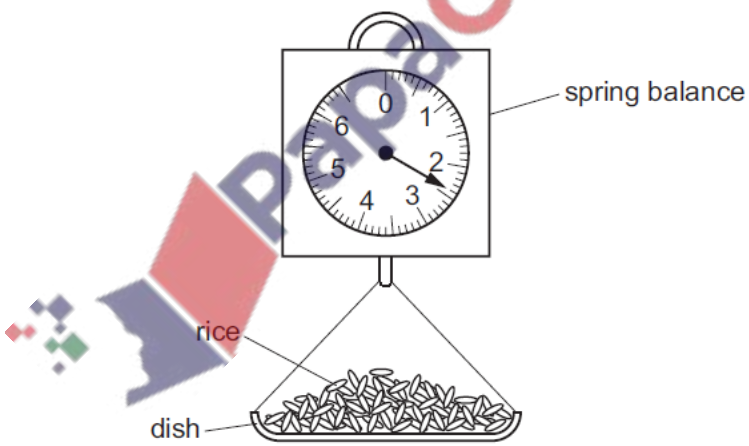
The acceleration of free fall is greater on the Earth than it is on the Moon.

How do the mass and weight of the space rocket on the Moon compare with their values on the Earth?

	mass on the Moon	weight on the Moon
A	less than on the Earth	same as on the Earth
B	less than on the Earth	more than on the Earth
C	same as on the Earth	less than on the Earth
D	same as on the Earth	more than on the Earth

9. June/2023/Paper_0625/11,21/No.5

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

10. June/2023/Paper_0625/12/No.4

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.

11. June/2023/Paper_0625/13/No.4

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 × breadths × 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

12. June/2023/Paper_0625/22/No.4

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.

13. June/2023/Paper_0625/22/No.5

A sphere P, made of steel, has a weight of 10 N on Earth.

Another sphere Q, also made of steel, has a weight of 10 N on Mars.

The gravitational field strength on Earth is greater than the gravitational field strength on Mars.

Which statement is correct?

A The mass of sphere P is the same as the mass of sphere Q.

B The mass of sphere P is less than the mass of sphere Q.

C On Mars, the weight of sphere P is the same as the weight of sphere Q.

D On Earth, the weight of sphere Q is less than 10 N.

14. June/2023/Paper_0625/23/No.2

Which statement about a falling object accelerating close to the Earth's surface is correct?

A The weight of the object is increasing and the force of air resistance on the object is decreasing.

B The weight of the object and the force of air resistance on the object are of equal magnitude, but act in opposite directions.

C The weight of the object is constant, but the force of air resistance on the object is increasing.

D The weight of the object is less than the force of air resistance.

15. June/2023/Paper_0625/23/No.4

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 × breadths × 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

16. June/2023/Paper_0625/23/No.5

An object in a space probe above the Earth weighs 3.5 N. The gravitational field strength at the height of the space probe is 7.0 N / kg.

The gravitational field strength on the Earth's surface is 9.8 N / kg.

What are the mass and the weight of the object on the Earth's surface?

	mass / kg	weight / N
A	0.50	3.5
B	0.50	4.9
C	2.0	3.5
D	2.0	20

17. June/2023/Paper_0625/43/No.1(a)

Fig. 1.1 shows a balloon filled with helium gas.

Fig. 1.1

The mass of the balloon is 120 kg.

(a) Calculate the weight of the balloon. Show your working.

weight = ... [1]