Topic 3 – Mass and weight

1.
Which statement about mass and weight is correct?

A Mass and weight are both forces.

B Neither mass nor weight is a force.

C Only mass is a force.

D Only weight is a force.

2.
Which list contains the name of a force?

A acceleration, charge, temperature

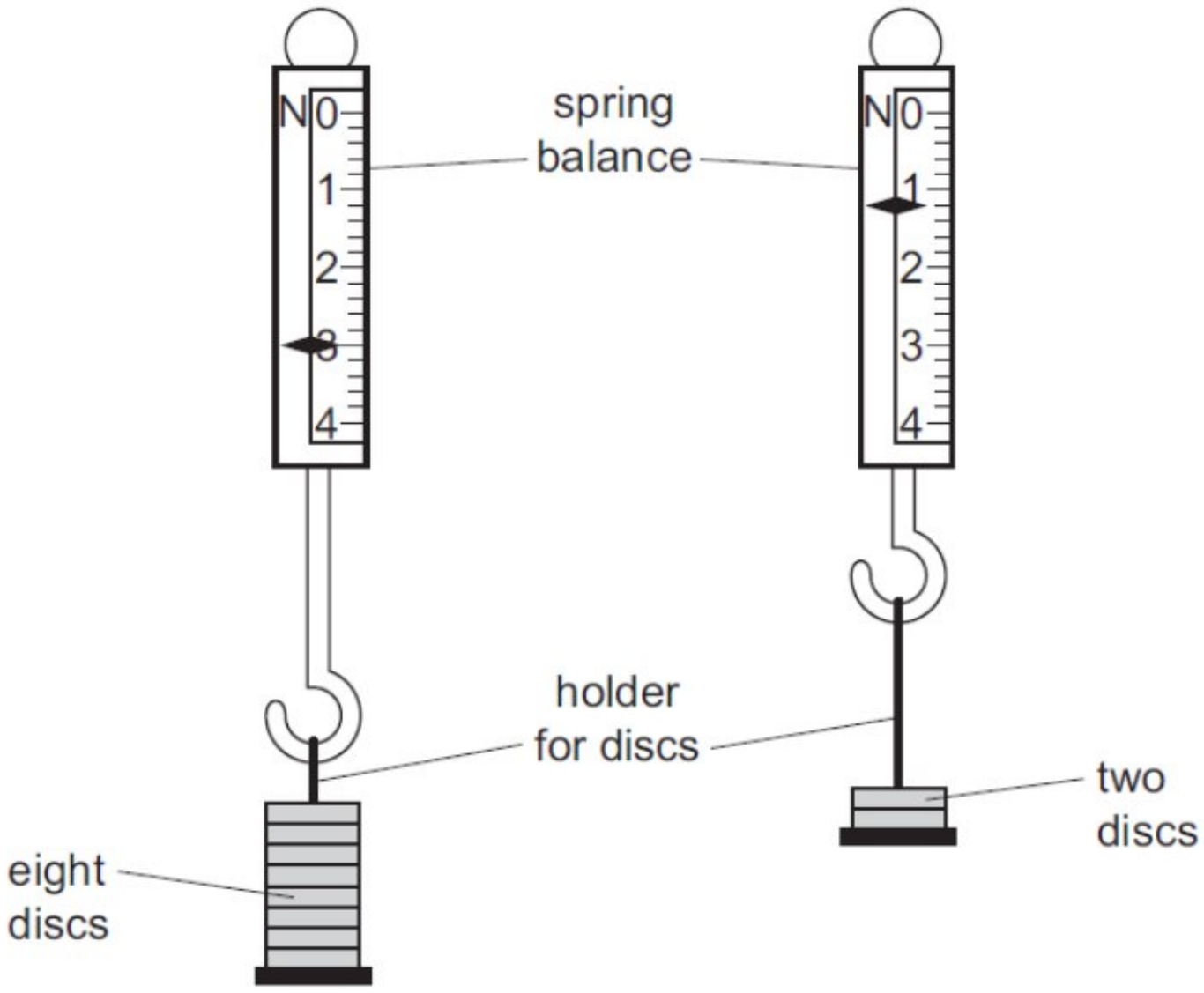
B density, resistance, speed

C distance, frequency, mass

D energy, power, weight

3.
The reading on a spring balance with a holder and eight identical discs is 3.0 N.

Six discs are removed and the reading becomes 1.2 N.

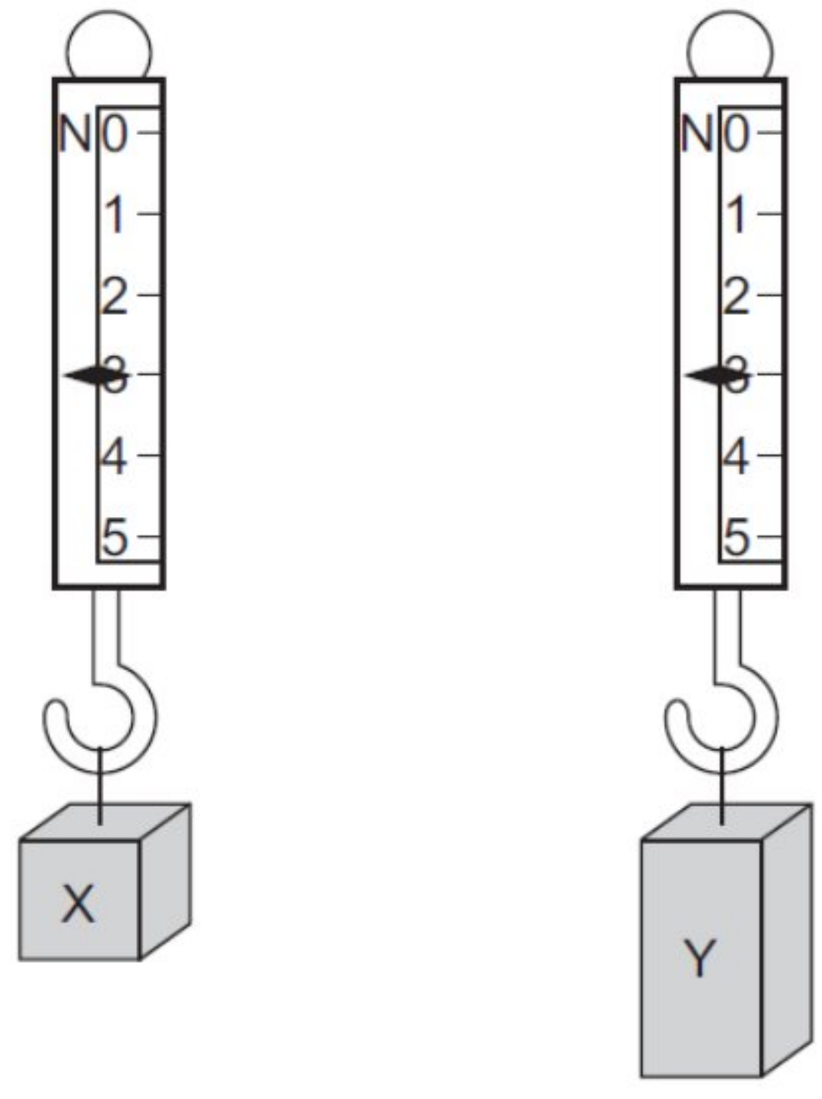


What is the weight of one disc?

A 0.2 N **B** 0.3 N **C** 0.5 N **D** 0.6 N

4.

Two blocks of metal X and Y hang from spring balances as shown in the diagram.



What does the diagram show about X and Y?

A They have the same mass and the same volume but different weights.

B They have the same mass and the same weight but different volumes.

C They have the same mass, the same volume and the same weight.

D They have the same weight and the same volume but different masses.

5.

A cup contains hot liquid.

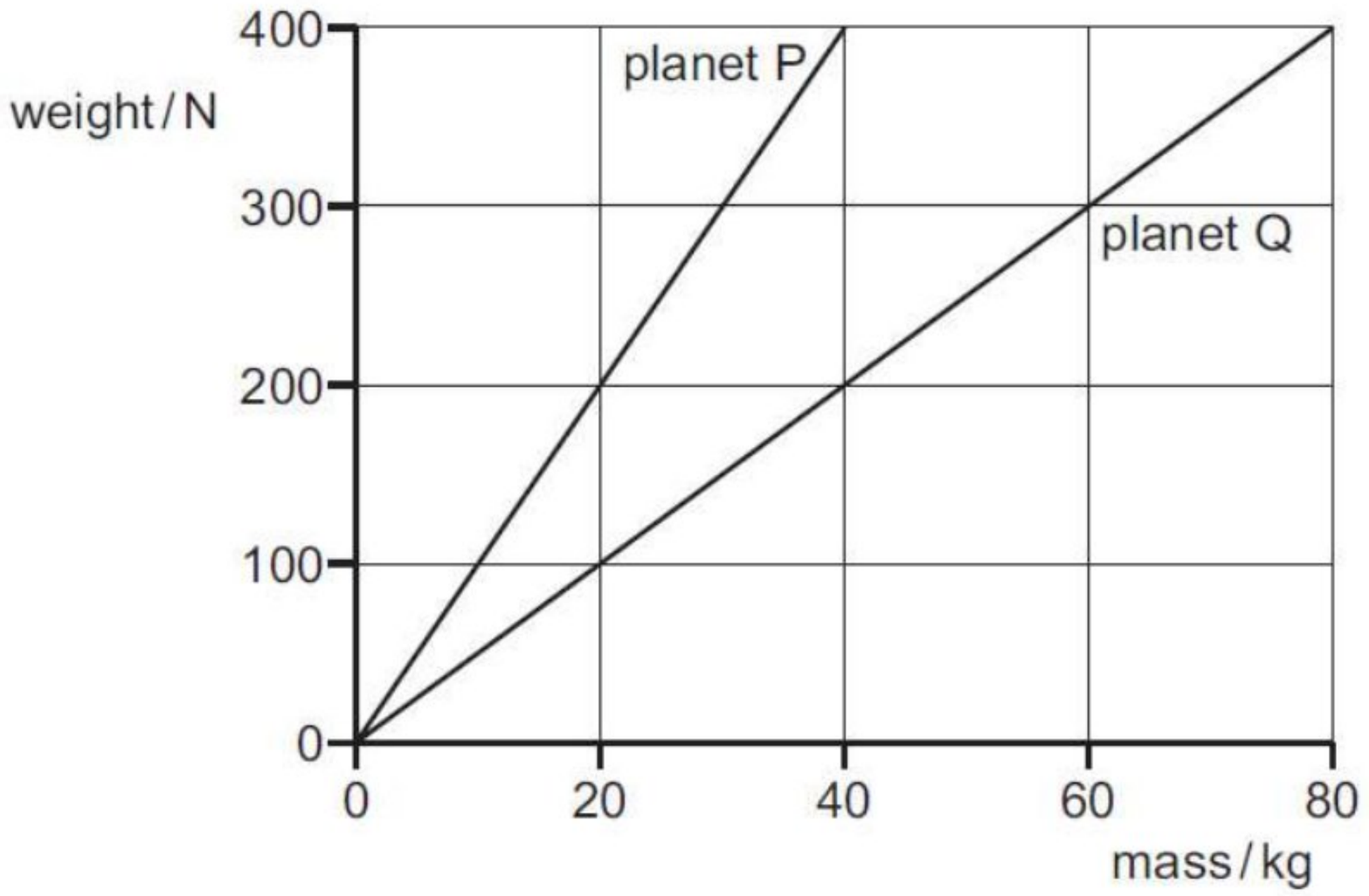
Some of the liquid evaporates as it cools.

What happens to the mass and to the weight of the liquid in the cup as it cools?

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

6.

The graph shows how weight varies with mass on planet P and on planet Q.



An object weighs 400 N on planet P. The object is taken to planet Q.

Which row is correct?

	mass of object on planet Q / kg	weight of object on planet Q / N
A	40	200
B	40	400
C	80	200
D	80	400

7.

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 bottle?

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

8.

Which statement is correct?

A Mass is a force, measured in kilograms.

B Mass is a force, measured in newtons.

C Weight is a force, measured in kilograms.

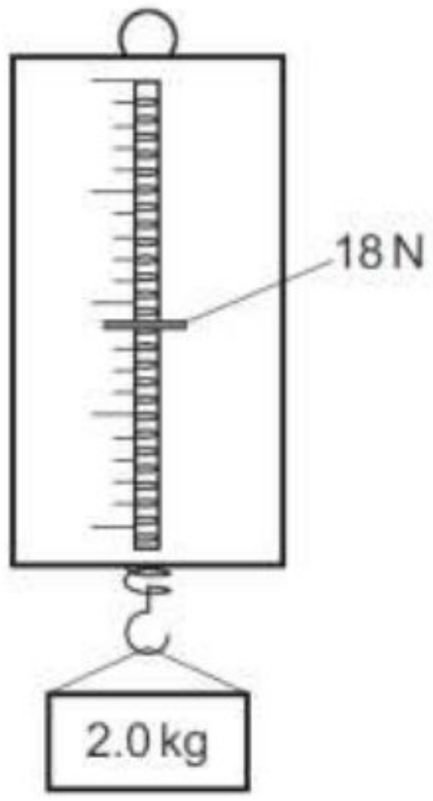
D Weight is a force, measured in newtons.

9.

The table shows the weight in newtons of a10 kg mass on each of four planets.

planet	weight of a 10 kg mass / N
Earth	100
Jupiter	250
Mercury	40
Venus	90

The diagram shows a force meter (spring balance) being used.



On which planet is the force meter (spring balance) being used?

A Earth

B Jupiter

C Mercury

D Venus

10.

The mass of an astronaut is 70 kg on the Moon.

What is the astronaut's mass on Earth?

A 7 kg **B** 70 kg **C** 80 kg **D** 700 kg

11.
Which property of a body can be measured in newtons?

A density

B mass

C volume

D weight

12.
Which statement about the masses and weights of objects on the Earth is correct?

A A balance can only be used to compare weights, not masses.

B Heavy objects always have more mass than light ones.

C Large objects always have more mass than small ones.

D Mass is a force but weight is not.

13.
The table shows the weight of a 10 kg mass on each of five planets.

planet	weight of a 10 kg mass / N
Mercury	40
Venus	90
Earth	100
Mars	40
Jupiter	250

On which planets would an astronaut have a smaller weight than on Earth?

A Mercury, Mars and Jupiter

B Mercury, Venus and Mars

C Mercury, Venus and Jupiter

D Venus, Mars and Jupiter

14.
Which statement is correct?

A The mass of a bottle of water at the North Pole is different from its mass at the Equator.

B The mass of a bottle of water is measured in newtons.

C The weight of a bottle of water and its mass are the same thing.

D The weight of a bottle of water is one of the forces acting on it.

15.

What is the meaning of the *weight* of an object?

A the density of the material from which it is made

B the force exerted on it by gravity

C the mass of the matter it contains

D the pressure it exerts on the floor

16.

The force of gravity acting on an astronaut in an orbiting spacecraft is less than when she is on the Earth's surface.

Compared with being on the Earth's surface, how do her mass and weight change when she goes into orbit?

	mass in orbit	weight in orbit
A	decreases	decreases
B	decreases	unchanged
C	unchanged	decreases
D	unchanged	unchanged

17.

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

18.
A newton is a unit of force.

Which quantity is measured in newtons?

A acceleration

B density

C mass

D weight

19.
What is the gravitational force that the Earth exerts on an object?

A the density of the object

B the mass of the object

C the volume of the object

D the weight of the object

20.
What are the correct units for force and for weight?

	force	weight
A	kg	kg
B	kg	N
C	N	kg
D	N	N

21.
Which statement about the mass of a falling object is correct?

A It decreases as the object falls.

B It is equal to the weight of the object.

C It is measured in newtons.

D It stays the same as the object falls.