Mass, Weight & Density

Question Paper

Course	CIE IGCSE Physics
Section	1. Motion, Forces & Energy
Topic	Mass, Weight & Density
Difficulty	Hard

Time Allowed	20
Score	/11
Percentage	/100

Question 1

A teacher has a hot cup of tea.

Some of the liquid in the cup evaporates.

Choose the line from the table below that correctly describes what happens to the mass and the weight of the tea in the cup.

	Mass	Weight
A	increases	decreases
B	increases	increases
C	decreases	decreases
D	decreases	increases

[1 mark]

Question 2

A dummy, named Starman, dressed in a white racing suit, was launched into space by Elon Musk's first Falcon Heavy rocket. Starman was sent on a journey towards Mars.
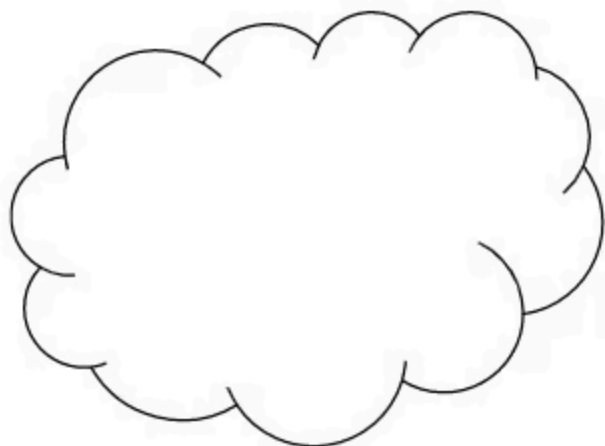
Compared with being on the Earth's surface, how do Starman's mass and weight change when he is on his journey to Mars?

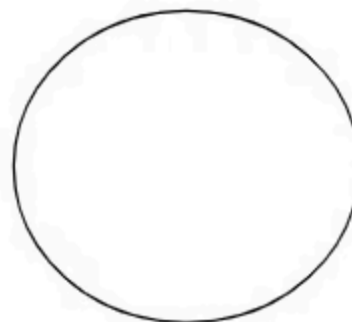|	Mass	Weight
A	stays the same	decreases
B	stays the same	stays the same
C	decreases	decreases
D	decreases	stays the same

[1 mark]

Question 3

The diagram shows a ball of bread dough, before and after it has been compressed (had the air knocked out of it).

Before compression

After compression

What happens to the mass and the weight of the dough when it is compressed?

	Mass	Weight
A	stays the same	decreases
B	stays the same	stays the same
C	decreases	decreases
D	decreases	stays the same

[1 mark]

Question 4

An astronaut buys a 5.0 kg tin of Quality Street chocolates on Earth.

She takes that 5.0 kg tin of Quality Street chocolate to the Moon.

What is the mass of the tin of Quality Street chocolate on the Moon?

A. More than 5.0 kg

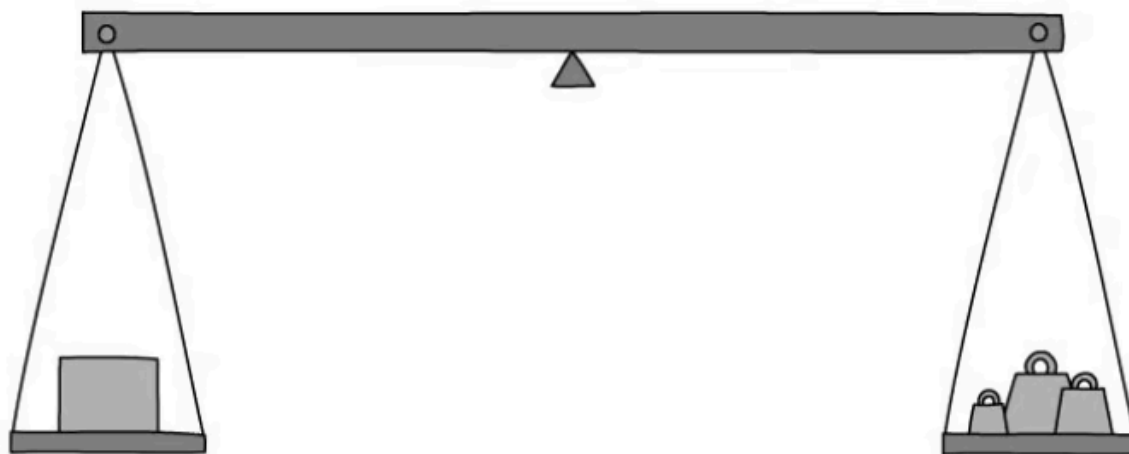**B.** Less than 5.0 kg, but more than 0.0 kg

C. 5.0 kg

D. 0.0 kg

[1 mark]

Question 5

An object is put on the left hand side of the balance, shown below, in order to determine its weight.

Masses are added to the right hand side until it balances.

The table below shows the effect of various weight combinations.

Masses on the right hand side	Effect
100g, 50g, 50g, 20g, 5g, 2g	Balance tips slightly to the right
200g, 10g, 10g, 5g	Balance tips slightly to the left

Which of the masses below is most likely to be the mass of the object?

A. 226 g

B. 230 g

C. 220 g

D. 225 g

[1 mark]

Question 6

A cheesemonger uses a newton meter to measure the weight of a block of cheese.

The cheese has a weight of 5.0 N
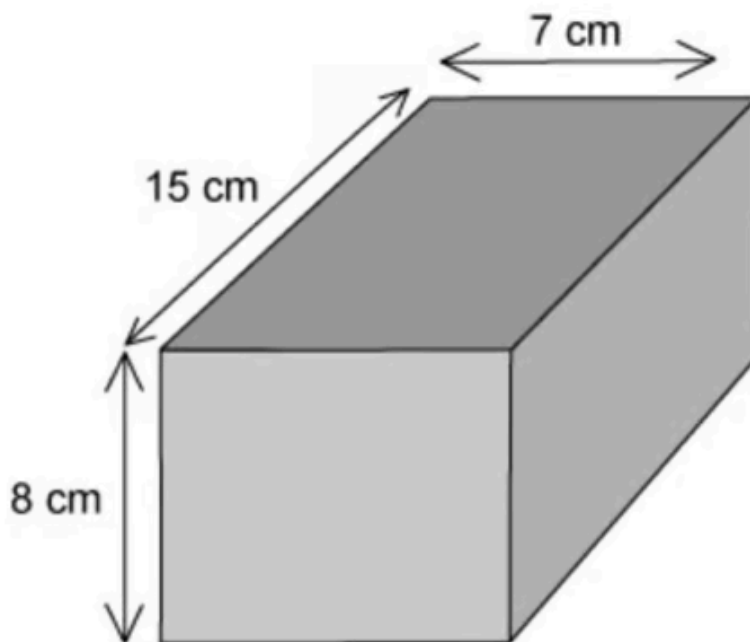
What is the approximate mass of the cheese?

A. 0.05 kg

B. 0.5 kg

C. 5 kg

D. 50 kg

[1 mark]

Question 7

A block of an unknown material is shown in the diagram.

It's mass is 500 g.

What is the density of the block?

A. $\dfrac{7 \times 15 \times 7}{500}$ g/cm^3

B. $\dfrac{7 \times 15}{500 \times 8}$ g/cm^3

C. $\dfrac{500}{7 \times 15 \times 8}$ g/cm^3

D. $\dfrac{500 \times 7}{8 \times 15}$ g/cm^3

[1 mark]

Question 8

A teacher wants to measure the density of a wooden cylinder.

She measures the radius, height and mass of the cylinder.

Which of the measurements that she has taken are required to calculate the density of the cylinder?

   A. Radius, height and mass

   B. Radius and height only

   C. Mass and height only

   D. Mass only

[1 mark]

Question 9

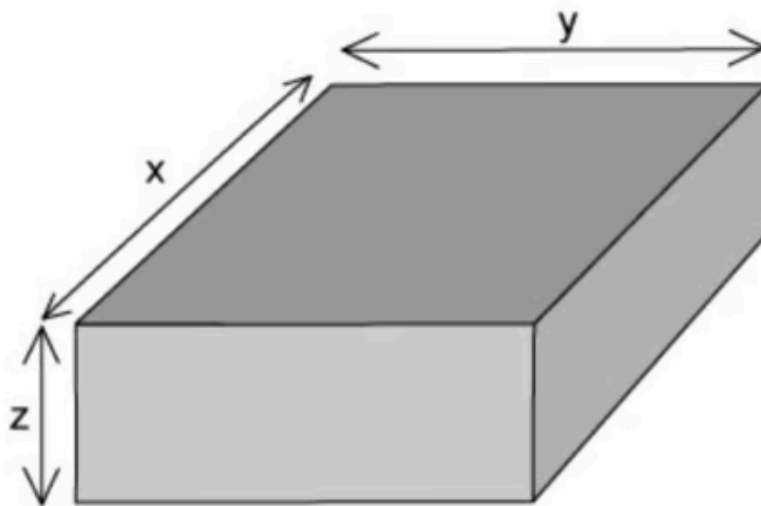The masses and volumes of four different objects are given in the table.

Which of the objects has the lowest density?

	Mass / g	Volume / cm^3
A	100	100
B	150	50
C	85	17
D	10	20

[1 mark]

Question 10

A block is shown in the diagram. It has a mass of m.

Which expression, below, could be used to calculate the density of the block?

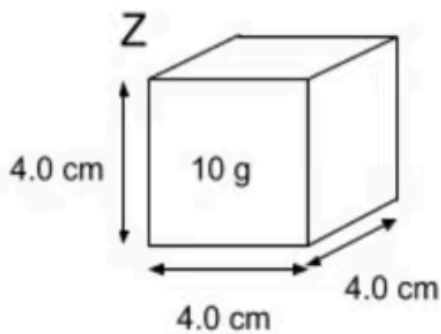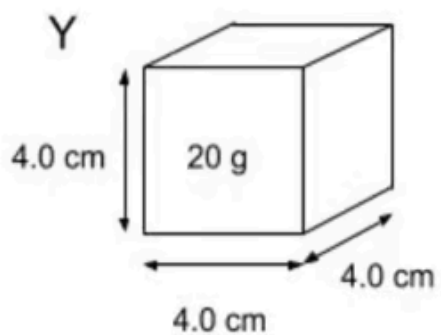A. $m \times x \times y \times z$
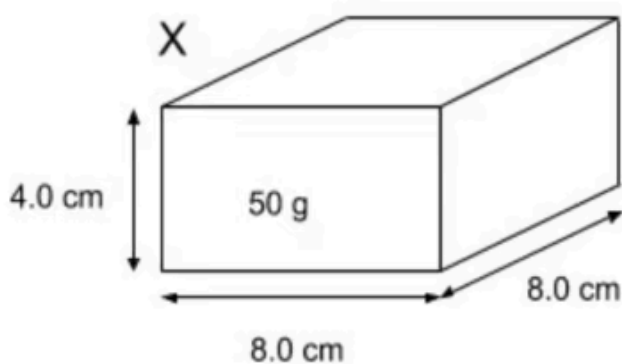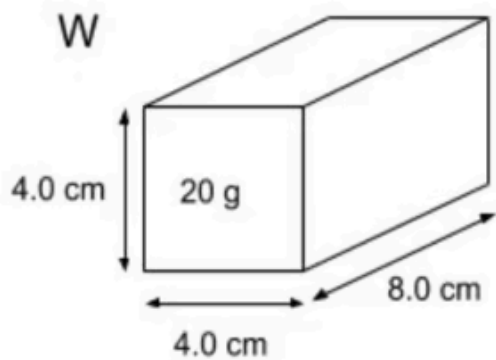
B. $x \times z \times y$

C. $\dfrac{x \times y \times z}{m}$

D. $\dfrac{m}{x \times y \times z}$

[1 mark]

Question 11

Four blocks, **W**, **X** , **Y** and **Z** are shown below.

Which of the two blocks have the same density?

A. W and X

B. W and Y

C. Y and Z

D. W and Z

[1 mark]