1   A student drops a ball from a high window.

The mass of the ball is 0.12 kg.

Calculate the weight of the ball.

weight = ... N   [3]

[Total: 3]

2   A student collects 0.21 kg of water.

Calculate the weight of this water.

weight of water = ... N   [3]

[Total: 3]

3   A student measures the mass of a piece of metal. Its mass is 146 g.

State the name of the instrument used to measure the mass.

....   [1]

[Total: 1]

4   A footballer has a mass of 72 kg.

Calculate the weight of this footballer.

weight = ... N   [3]

[Total: 3]

5 The mass of a wheelbarrow is 20 kg. The mass of the load in the wheelbarrow is 30 kg.

Calculate the total weight of the wheelbarrow and its load.

weight of wheelbarrow and its load = ... N   [3]

[Total: 3]

6 A student has a metal object.

The student measures the mass of the object.

State the name of the equipment used to measure the mass.

.... [1]

[Total: 1]

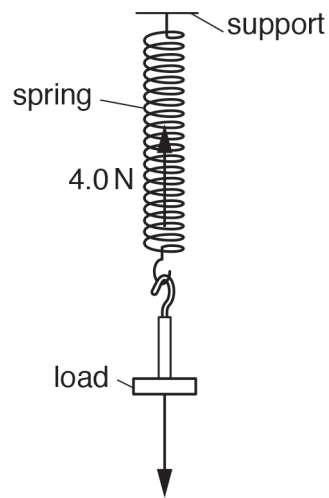**7** The diagram shows a set of masses made from the same material.
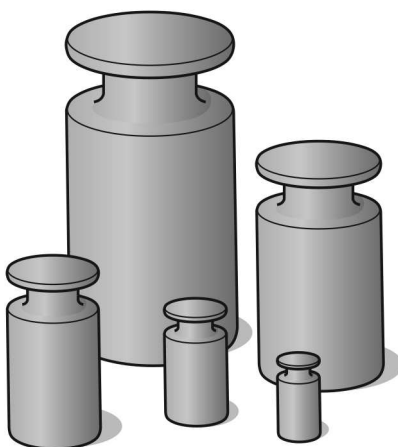
The three largest masses are 2.5 kg, 1.0 kg and 0.5 kg.

Calculate the combined **weight** of these three masses. Include the unit.

weight = ... [4]

[Total: 4]

8 A load is attached to a spring, as shown in the diagram. Two arrows indicate the vertical forces acting on the load. The spring and the load are stationary.
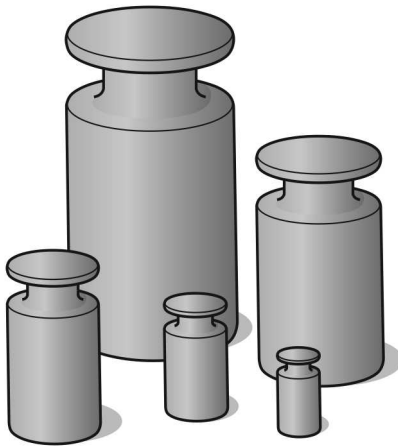

State the name of the force acting vertically downwards.

.... [1]

[Total: 1]

9 The diagram shows a set of masses made from the same material.

The largest mass is 2.5 kg.

State the number of grams in 2.5 kg.

2.5 kg = ... g   [1]

[Total: 1]

10 The diagram shows a raft floating on water.
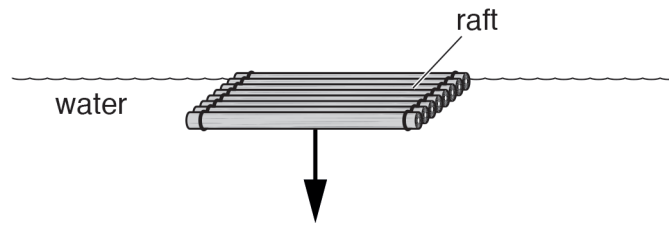
A force of 20 000 N acts on the raft in the direction of the arrow shown in the diagram.

(a) State the name given to the force shown in the diagram.

.... [1]

(b) Calculate the mass of the raft.

mass = ... kg   [3]

[Total: 4]

11 A student has a piece of metal that has an irregular shape. The weight of the metal is 3.0 N.

Calculate the mass of the metal.

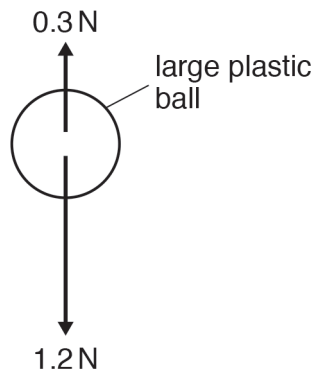mass = ... kg   [2]

[Total: 2]

12 A student is using some 50 g masses as loads to stretch a spring.

Calculate the weight of one 50 g mass.

weight of 50 g mass = ... N   [3]

[Total: 3]

13 The diagram shows the vertical forces that act on a large plastic ball as it is falling.

0.3 N

large plastic
ball

1.2 N

(not to scale)

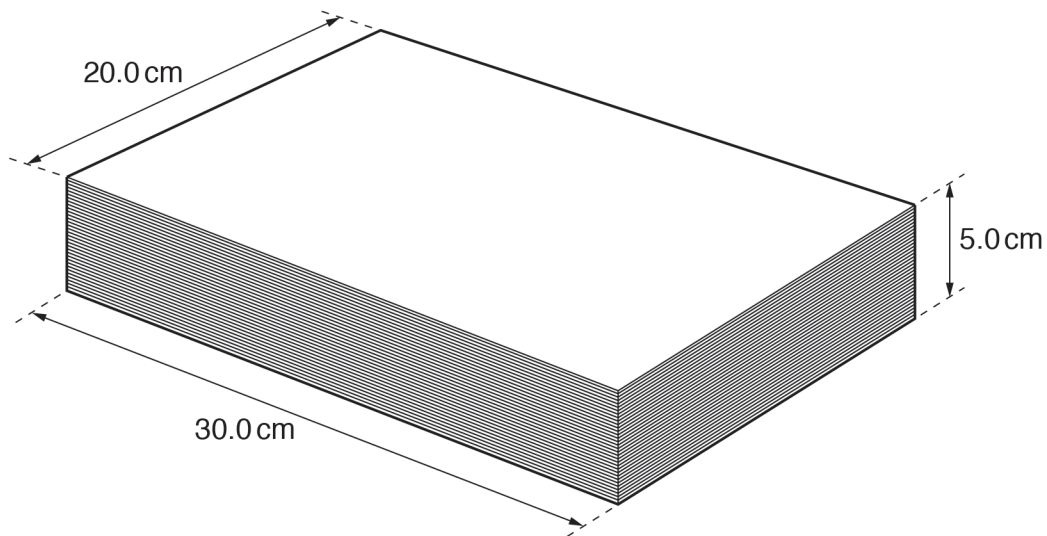(a) State the name given to each of the forces shown in the diagram.

1. ....

2. .... [1]

(b) Calculate the size of the resultant force on the ball.

resultant force = ... N   [1]

[Total: 2]

14 A student has a pile of A4 paper for his computer printer.

The diagram shows the dimensions of the pile of paper.

The student measures the total mass of the paper in the pile.

State the name of a device used to measure mass.

.... [1]

[Total: 1]

15 Which expression is used to find gravitational field strength *g*?

A mass x density

B mass ÷ weight

C weight x mass

D weight ÷ mass

[1]

[Total: 1]

16 In which pair are both quantities measured in newtons?

A force and pressure

B force and weight

C mass and pressure

D mass and weight

[1]

[Total: 1]

17 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.

[1]

[Total: 1]

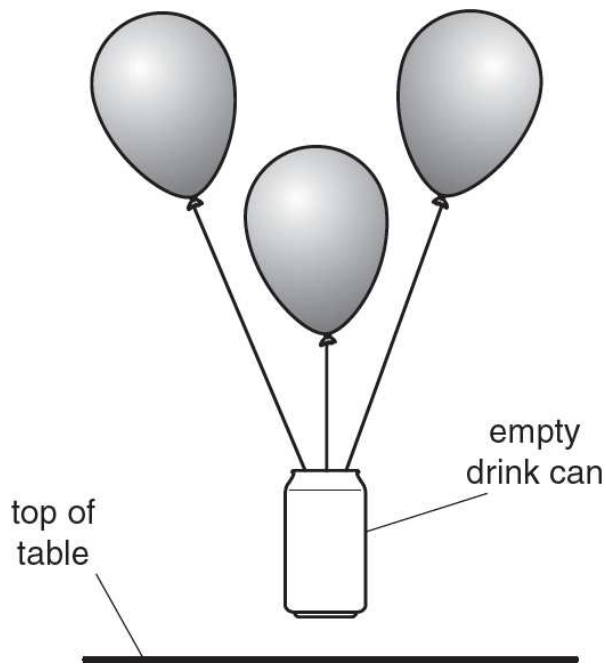**18** A student is sitting on a chair as shown in the figure.
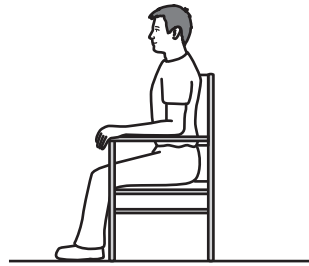
Estimate the mass of the student. .... [1]

[Total: 1]

19 At a party, three balloons are filled with a gas less dense than air. The balloons are tied to an empty drink can. The can floats, without moving, in the air above a table, as shown in the figure on the left.

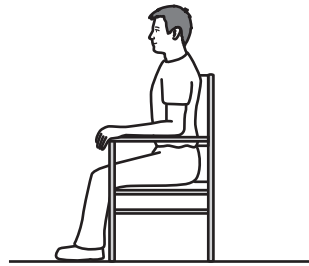The figure on the right represents the vertical forces acting on the can as it floats in the air.

State the name given to the downward force labelled Y.

.... [1]

[Total: 1]

20 A student is sitting on a chair as shown in the figure.

Which statement is correct for the mass of the chair on the Moon and the mass of the chair on the Earth?

Tick the box next to the correct statement.

☐ The mass of the chair is greater on the Moon.

☐ The mass of the chair is less on the Moon but not zero.

☐ The mass of the chair is the same on the Moon.

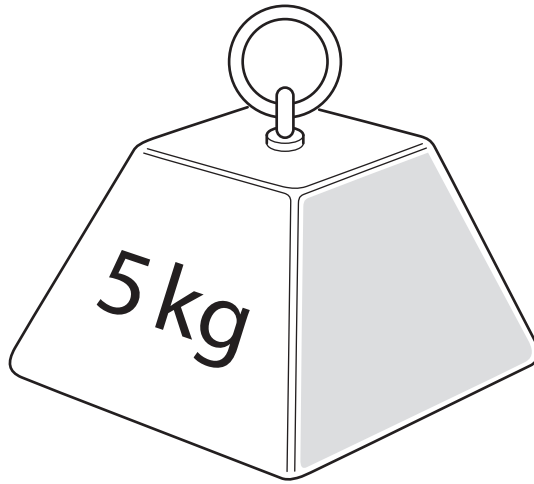☐ The mass of the chair is zero on the Moon.

[1]

[Total: 1]

21 The mass of an object is 12 g.

State this mass in kg.

mass = ... kg   [1]

[Total: 1]

22 A steel object has **5 kg** stamped on its side, as shown in the figure.

Express 5.0 kg in grams.

5.0 kg = ... g   [1]

[Total: 1]

23 A water tank has a rectangular base of dimensions 1.5 m by 1.2 m and contains 1440 kg of water.

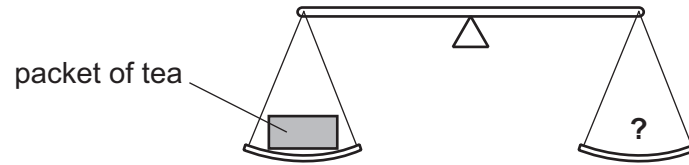Calculate

(a) the weight of the water,

weight = ...   [1]

(b) the pressure exerted by the water on the base of the tank.

pressure = ...   [2]

[Total: 3]

24 A packet of tea has a total mass of 150 g. It contains 125 g of tea leaves.

The packet is put on one side of the balance shown.

packet of tea

?

Which masses on the other side would balance the packet of tea?

A 20 g + 5 g

B 100 g + 50 g

C 100 g + 10 g + 10 g + 5 g

D 200 g + 50 g + 20 g + 5 g

[1]

[Total: 1]