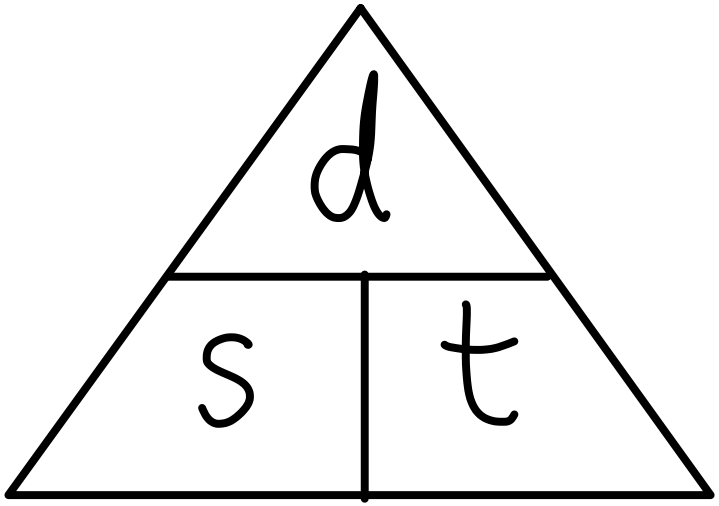
Compound Measurements
(Speed , Density , Pressure)

By .... Kru ซี่

A compound measure is made up of two or more different measurements

- Speed
- Density
- Force

Speed is a compound measure because speed = $\frac{\text{distance}}{\text{time}}$



Convert minutes to hours

20 minutes

40 minutes

2 hours 30 minutes

1 hour 15 minutes

3 hours 45 minutes

2 hours 40 minutes

Convert unit of speed

Convert unit of speed

Change the following speeds into metres per second.

(a) 360km/h (b) 18km/h (c) 36km/h (d) 72km/h

Convert unit of speed

Change the following speeds into kilometres per hour.

(a) 45m/s (b) 15m/s (c) 20m/s (d) 4m/s

Calculate the speed

A car travels 600km in 8 hours

Calculate the speed

A car travels 27 kilometres in 45 minutes.

Calculate the speed

An airplane flies 315 kilometres in 1 hour 45 minutes

Calculate the time taken

A bird flies 330 kilometres at a speed of 55 kilometres per hour.

Calculate the time taken

A dog runs 168 metres at a speed of 12m/s

Calculate the time taken

Give each answer in hours and minutes.

A bird flies 80 miles at a speed of 15 miles per hour

Calculate the distance

A helicopter flies at a speed of 72miles per hour for 10 minutes

Calculate the distance

A bird flies at a speed of 32 kilometres per hour for 1 hour 30 minutes

Calculate the average speed

A car travels for 4 hours at an average speed of 45 mph and then 6 hours at an average speed of 35 mph.

(a) Work out the total distance travelled.

(b) Work out the average speed for the entire journey.

Calculate the average speed

David cycles at 20mph for 1¼ hours, then at 16mph for 2 hours and then 12mph for 45 minutes.

(a) Work out the total distance travelled.

(b) Work out the average speed for the entire journey.

Density is the mass of a substance contained in a certain volumes

Work out the density of each of the following.
State the units of each answer.

A piece of wood has a mass of 7g and a volume of $10cm^3$

Work out the density of each of the following.
State the units of each answer.

An iron statue with volume of $0.05m^3$ and a mass of 394kg

Density , mass and volume

TOP Maths IGCSE

Work out the mass of each of the following.
State the units of each answer.

A rod with a volume of $50cm^3$ made from copper which has a density of $8.9g/cm^3$.

Density , mass and volume

TOP Maths IGCSE

Work out the mass of each of the following.
State the units of each answer.

A block with a volume of $1.8m^3$ made from silver which has a density of $10490kg/m^3$

Work out the volume of each of the following.
State the units of each answer.

A 4kg sheet of glass which has a density of $2.42 g/cm^3$

Work out the volume of each of the following.
State the units of each answer.

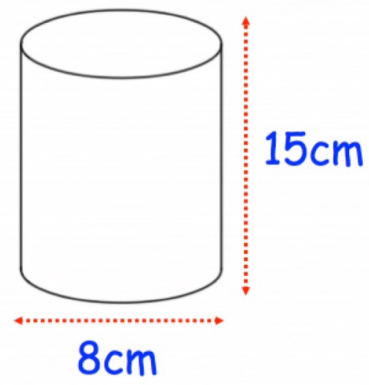
A 770g block made of brass which has a density of $8.67 g/cm^3$

Density , mass and volume

TOP Maths IGCSE

Shown is a solid cylinder made from carbon.
The density of carbon is 1.95g/cm

Find the mass of the cylinder.

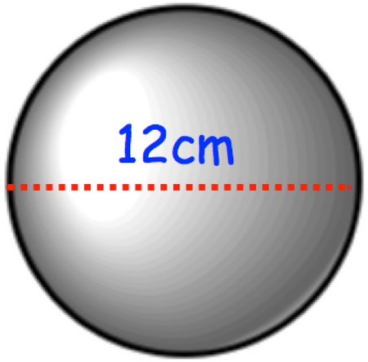


Density , mass and volume

TOP Maths IGCSE

A solid sphere has a diameter of 12cm.
The sphere is made from glass.
The density of the glass is 3.02g/cm

Find the mass of the glass sphere.



Density , mass and volume

TOP Maths IGCSE

Beverley is building a toy boat.
If wood has a density under $1g/cm^3$, it will float.
She has a choice of three different pieces of wood.

Piece 1: volume = $400cm^3$ and mass = 450g.

Piece 2: volume = $0.02m^3$ and mass = 8kg

Piece 3: volume = $1000cm^3$ and mass = 1.03kg

Which piece of wood is the most suitable?

Pressure is the force applied over a certain area

Work out the pressure for each of the following.
Give suitable units for each answer.

A box is placed on a table and exerts a force of 250N on an area of $20cm^2$

Pressure , force and area

TOP Maths IGCSE

Work out the pressure for each of the following.
Give suitable units for each answer.

An object is placed on the ground and exerts a force of 3000N on an area of $4m^2$

Work out the force for each of the following.
In each case a box has been placed on the floor.

The area of contact is 16cm^2 and the pressure exerted is 10N/cm^2

Work out the force for each of the following.
In each case a box has been placed on the floor.

The area of contact is $0.2m^2$ and the pressure exerted is $1.2N/cm^2$

Work out the area of contact for each of the following.
In each case an object has been placed on the floor.
Give suitable units for each answer.

The object exerts a force of 420N on the floor and the pressure on the floor is 20N/cm^2

Work out the area of contact for each of the following.
In each case an object has been placed on the floor.
Give suitable units for each answer.

The object exerts a force of 30N on the floor and the pressure on the floor is 600N/m^2