# GCSE Maths: Density and pressure (Higher): worksheet

GCSE Maths - Units and Compound Measures - Higher - Lesson 16.5

Name: _____ Date: _____ Score: _____

16 questions. Write your answers in the spaces. Answers and step-by-step help are free at **websink.site/gcse/maths/ch16-units-compound-measures/higher/density-and-pressure/**

## Exercise 16G Density and pressure

Calculator allowed

**1** **Work out the density of each object, in g/cm³.**

**(a)** mass 120 g, volume 40 cm³

Answer:

**(b)** mass 780 g, volume 100 cm³

Answer:

**(c)** mass 90 g, volume 120 cm³

Answer:

**(d)** mass 2700 g, volume 1000 cm³

Answer:

**2** **Work out the mass of each object.**

**(a)** density 8 g/cm³, volume 25 cm³

Answer:

**(b)** density 2.5 g/cm³, volume 60 cm³

Answer:

**(c)** density 0.9 g/cm³, volume 200 cm³

Answer:

**(d)** density 19.3 g/cm³, volume 10 cm³

Answer:

**3** **Work out the volume of each object.**

**(a)** mass 360 g, density 9 g/cm³

Answer:

**(b)** mass 56 g, density 0.8 g/cm³

Answer:

**(c)** mass 5400 g, density 2.7 g/cm³

Answer:

**(d)** mass 193 g, density 19.3 g/cm³

Answer:

**4** **Work out the pressure in each case.**

**(a)** force 500 N on an area of 2 $m^2$

Answer:

**(b)** force 90 N on an area of 3 $cm^2$

Answer:

**(c)** force 1200 N on an area of 0.4 $m^2$

Answer:

**(d)** force 48 N on an area of 16 $cm^2$

Answer:

**5** **Work out the force in each case.**

**(a)** pressure 15 $N/cm^2$, area 6 $cm^2$

Answer:

**(b)** pressure 200 $N/m^2$, area 3.5 $m^2$

Answer:

**(c)** pressure 8 $N/cm^2$, area 25 $cm^2$

Answer:

**6** **Work out the area in each case.**

**(a)** force 600 N, pressure 150 $N/m^2$

Answer:

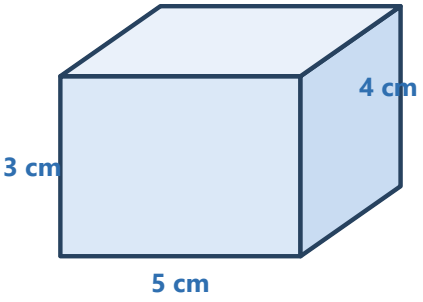
**(b)** force 72 N, pressure 6 $N/cm^2$

Answer:

**(c)** force 2000 N, pressure 500 $N/m^2$

Answer:

**7** **A solid block is a cuboid 5 cm by 4 cm by 3 cm. Its mass is 468 g. Work out its density.**




Answer:

**8** **Gold has a density of 19.3 $g/cm^3$. A gold bar has volume 250 $cm^3$. Work out the mass of the bar in kilograms.**

Answer:

**9** **A block of wood has mass 450 g and volume 500 $cm^3$. Water has density 1 $g/cm^3$. Will the block float or sink? Give a reason.**

Answer:

**10** Object A has mass 240 g and volume 80 $cm^3$. Object B has mass 150 g and volume 60 $cm^3$. Which object is made from the denser material?

Answer:

**11** A girl has a weight (force) of 500 N. Each of her feet has an area of 200 $cm^2$. Work out the pressure on the ground in $N/cm^2$ when she stands (a) on two feet, (b) on one foot.

> **(a)** Two feet
>
> Answer:

> **(b)** One foot
>
> Answer:

**12** A person of weight 600 N wears either flat shoes (contact area 100 $cm^2$ in total) or stiletto heels (contact area 1 $cm^2$ in total). Compare the pressure on the floor and explain why stilettos can damage a wooden floor.

Answer:

**13** A swimming pool is 10 m long, 5 m wide and 2 m deep and is full of water. Water has density 1000 $kg/m^3$. Work out the mass of the water in tonnes.

Answer:

**14** Copper has density 8.9 $g/cm^3$. Write this in $kg/m^3$.

Answer:

**15** 200 $cm^3$ of liquid A (density 0.8 $g/cm^3$) is mixed with 300 $cm^3$ of liquid B (density 1.2 $g/cm^3$). Work out the density of the mixture, assuming the volumes just add.

Answer:

**16** A pressure of 3 $N/cm^2$ acts on a surface. Write this pressure in $N/m^2$.

Answer:

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