DMV – Density/Mass/Volume www.m4ths.com

Density = Mass ÷ Volume
Mass = Density × Volume
Volume = Mass ÷ Density

Find the missing value x for each question below stating the units for your answer.

Question	Density	Mass	Volume
1	$2g/cm^3$	x	$10cm^3$
2	$12g/cm^3$	$18g$	x
3	x	$108g$	$12cm^3$
4	$18g/cm^3$	$54g$	x
5	$8g/cm^3$	x	$20cm^3$
6	x	$120g$	$40cm^3$

(7) A block of wood has mass $3kg$ and volume $400m^3$. Find the density of the wood stating the units for your answer. Give your answer in standard form.

(8) A solid sphere has density $20kg/m^3$ and mass $100kg$. Find the volume of the sphere.

(9) A metal rod has volume $6.08cm^3$ and density $2kg/cm^3$. Find the mass of the metal.

(10) Complete the following sentence

"A block has _____ $6kg/m^3$, _____ $42m^3$ and _____ $7kg$"

(111) A **cube** has density $5gcm^3$ and mass $320g$

(a) Find the volume of the cube.

(b) Find the total surface area of the cube.

(12) The formula for the volume of a sphere is $V = \frac{4}{3}\pi r^3$ where V is the volume and r is the radius. Find the radius of a sphere that has density $4kg/cm^3$ and mass $108\pi kg$.

(13) A rock has mass $2p$ and volume $4p$. Write an expression for the density of the rock in terms of p.

(15) A square based pyramid of height $10cm$ has density $6000gm/cm^3$. Find its mass.

PFA – Pressure/Force/Area www.m4ths.com

Pressure = Force ÷ Area
Force = Pressure × Area
Area = Force ÷ Pressure
(Force is measured in Newtons (N))

Find the missing value x for each question below stating the units for your answer.

Question	Pressure	Force	Area
1	$3N/m^2$	x	$18m^2$
2	x	$20N$	$120m^2$
3	$2N/m^2$	$100N$	x
4	$12N/m^2$	x	$1820m^2$
5	x	$30N$	$93m^2$

(6) A block has area $4cm^2$ and exerts a force of $70N$ on the floor. Find the pressure of the block on the floor.

(7) The pressure a single chair leg exerts on the floor is $2N/m^2$. Given that the area of the chair leg is $0.01m^2$, find the force of the chair leg on the floor.

(8) Complete the following sentence

"The bottom of a bucket has _____$300cm^2$ and exerts a _____ of $40N$ on the floor. As a result, the _____ on the floor is_____"

(9) A circular plate is in contact with a table. The pressure on the table is $2N/cm^2$ and the force on the table is $120N$. Find the radius of the plate to 3SF.

(10) A block of base area y exerts a force of x on a table. Find the pressure on the table in terms of x and y.

(11) A square block of side length xcm exerts a force of xN on a table. Find the pressure on the table as a simplified expression.

(12)* A cylinder with volume $2\pi x^3$ and height $2x$ exerts a pressure of yg N on a table when rested on its cross section. Find the mass of the cylinder. x and y are constants and g is gravity.