

## Density, Mass and Volume

<b>(a)</b>	<b>(b)</b>	<b>(c)</b>
<p>A metal cube with side length <math>3\text{ cm}</math> has a mass of <math>62.1\text{ g}</math>. Find the density of the metal in <math>\text{g/cm}^3</math>.</p> <p style="text-align: center;"><math>2.3\text{ g/cm}^3</math></p>	<p>A solid cylinder has a radius of <math>5\text{ cm}</math> and a height of <math>8\text{ cm}</math>. The density of the cylinder is <math>1.25\text{ g/cm}^3</math>. Calculate the mass of the cylinder in grams to 3 significant figures.</p> <p style="text-align: center;"><math>785\text{ g}</math></p>	<p>A spherical boulder has a radius of <math>1.2\text{ m}</math>. If the boulder has a mass of <math>15000\text{ kg}</math>, find its density in <math>\text{kg/m}^3</math>. Give your answer to 3 significant figures.</p> <p style="text-align: center;"><math>2070\text{ kg/m}^3</math></p>
<b>(d)</b>	<b>(e)</b>	<b>(f)</b>
<p>A prism has a mass of <math>2.6\text{ kg}</math> and a density of <math>1.3\text{ kg/m}^3</math>. If the prism has a cross sectional area of <math>0.8\text{ m}^2</math>, calculate the length of the prism.</p> <p style="text-align: center;"><math>2.5\text{ m}</math></p>	<p>A wooden cuboid has dimensions <math>8\text{ cm}</math> by <math>4\text{ cm}</math> by <math>x\text{ cm}</math>. The cuboid has density <math>1.1\text{ g/cm}^3</math> and mass <math>228.8\text{ g}</math>. Find the value of <math>x</math>.</p> <p style="text-align: center;"><math>6.5\text{ cm}</math></p>	<p>A cube of side length <math>6\text{ cm}</math> and mass <math>561.6\text{ g}</math> has the same density as a cylinder of mass <math>1176\text{ g}</math>. If the radius of the cylinder is <math>3\text{ cm}</math>, find its height.</p> <p style="text-align: center;"><math>16\text{ cm}</math></p>
<b>(g)</b>	<b>(h)</b>	<b>(i)</b>
<p><math>120\text{ g}</math> of aluminium and <math>380\text{ g}</math> of copper are melted down and mixed together to form an alloy. Aluminium has density <math>2.7\text{ g/cm}^3</math> and copper has density <math>8.9\text{ g/cm}^3</math>. Find the density of the alloy.</p> <p style="text-align: center;"><math>5.74\text{ g/cm}^3</math></p>	<p>Melted chocolate has a density of <math>0.71\text{ g/cm}^3</math> and milk has a density of <math>1.03\text{ g/cm}^3</math>. <math>50\text{ ml}</math> of melted chocolate is mixed with <math>200\text{ ml}</math> of warm milk to make a drink. Find the density of the drink in <math>\text{g/cm}^3</math>.</p> <p style="text-align: center;"><math>0.966\text{ g/cm}^3</math></p>	<p>A toy is made of a metal hemisphere with a wooden cone on top. The hemisphere has a radius of <math>4\text{ cm}</math>. The cone also has a radius <math>4\text{ cm}</math>, a height of <math>10\text{ cm}</math> and density <math>1.5\text{ g/cm}^3</math>. If the average density of the toy is <math>6.1\text{ g/cm}^3</math>, find the density of the metal.</p> <p style="text-align: center;"><math>11.85\text{ g/cm}^3</math></p>