12 The diagram shows a solid cylinder with base radius 3 cm and height 8 cm.
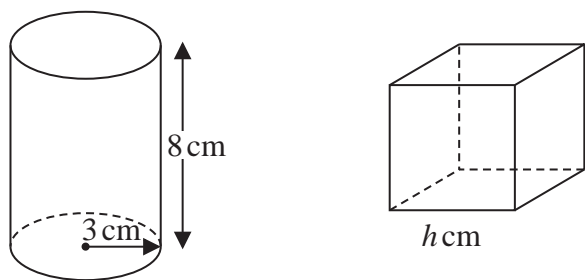It also shows a solid cube with side length h cm.

8 cm

3 cm

h cm

The cylinder is made from steel with a density of $7.86 \, \text{g/cm}^3$
The cube is made from brass with a density of $8.5 \, \text{g/cm}^3$

The mass of the cylinder is equal to the mass of the cube.

Work out the value of h.
Give your answer correct to 1 decimal place.

$h =$ ....

(Total for Question 12 is 5 marks)