7th March **Higher Plus 5-a-day**

Corbettmaths

A solid wooden sphere has radius of 5.97cm

Let $r = 6$

Work out an estimate for the volume of the sphere.
Give your answer in terms of π

$\frac{4}{3} \times \pi \times 6^3$

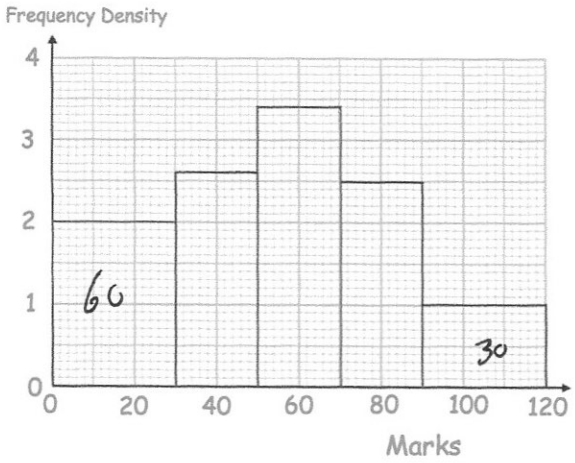
$= 288\pi \text{ cm}^3$

The sphere has a mass of 1002g
Bruno wants to work out the density of the wood.
In his calculations, he uses a radius of 6cm and a mass of 1000g

$d = \frac{m \downarrow}{v \uparrow}$

Is his answer an over-estimate or an under-estimate of the actual density?
Explain why

Underestimate as mass has been rounded down and volume up.



260 people sit a driving theory test.
Their results are shown in this histogram.

10% of the people scored less than x marks 26^{th}

Find an estimate of x

$0 + \frac{26}{60} \times 30 = 13$

5% of people scored more than y marks.

5% of 260 = 13 $\quad 247^{th}$

Find an estimate of y

$90 + \frac{17}{30} \times 30 = 107$

Solve the simultaneous equations

$x^2 + 3xy = 10$

$x + 2y = 3$

$x = 3 - 2y$

$(3-2y)(3-2y) + 3y(3-2y) = 10$

$9 - 12y + 4y^2 + 9y - 6y^2 = 10$

$-2y^2 - 3y + 9 = 10$

$2y^2 + 3y + 1 = 0$

$(2y+1)(y+1) = 0$

$y = -\frac{1}{2}$ or $y = -1$

$x = 4$ $\quad x = 5$