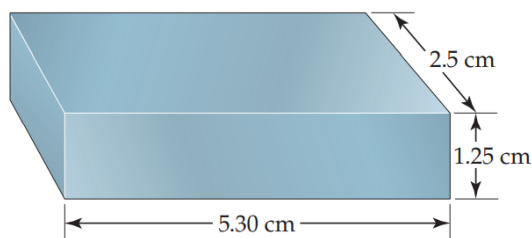## Exercise 1.10

(**a**) How many significant figures should be reported for the volume of the metal bar shown here?
(**b**) If the mass of the bar is 104.72 g, how many significant figures should be reported when its density is determined using the calculated volume? [Section 1.6]

Solution

Part (a)

The volume is obtained by multiplying the length by the width by the height.

$$V = l \times w \times h = (5.30 \text{ cm})(2.5 \text{ cm})(1.25 \text{ cm}) \approx 17 \text{ cm}^3$$

The result is rounded to two significant figures because the number 2.5 only has two.

Part (b)

The density is mass divided by volume.

$$d = \frac{m}{V} \approx \frac{104.72 \text{ g}}{17 \text{ cm}^3} \approx 6.2 \frac{\text{g}}{\text{cm}^3}$$

The result is rounded to two significant figures because the number 17 only has two.