19) (a) $4.5 \times 6.5 = 29.25$
   (b) $\frac{3.5}{6.5} = 0.538$ (3sf)

20) (a) Upper bound of volume = $\frac{1}{3} \times 230.5^2 \times 146.5 = 2594527 \text{ m}^3$
    Lower bound of volume = $\frac{1}{3} \times 229.5^2 \times 145.5 = 2554507 \text{ m}^3$
    Difference = 40020 = 40000 \text{ m}^3 \text{ (to 3sf)}

16) (a) $1.65 \leq r < 1.75 \quad 30.95 \leq R < 31.05$
   (b) Lower bound of $R - r = 30.95 - 1.75 = 29.2$
   (c) Lower bound of volume of large sphere = $\frac{4}{3} \pi \times 30.95^3$
       Upper bound of volume of small sphere = $\frac{4}{3} \pi \times 1.75^3$
       Divide these to get 5531

19) Area of whole sheet = $12.5 \times 10 = 125\text{ cm}^2$ (these measurements were given exactly)
    To get greatest possible amount of waste we need least possible area of trapezium.
    This is $\frac{1}{2} \times 9.65 \times (8.65 + 11.35) = 96.5 \text{ cm}^2$
    So greatest possible waste = $125 - 96.5 = 28.5 \text{ cm}^2$

18) (a) Upper bound for area = $\frac{1}{2} \times 83.5 \times 95 = 3966.25 \text{ mm}^2$
   (b) Lower bound for $\tan x = \frac{85}{83.5} = 1.0179...$
   (d) To 2sf, UB = 52000 mm$^3$ and LB = 46000 mm$^3$ which are not the same.
    To 1sf, both UB and LB are 50000 mm$^3$, so the appropriate degree of accuracy is:
    Volume = 50000 mm$^3$ to 1sf
    Answer is asked for in cm$^3$, so convert to \textbf{50 cm$^3$ (1sf)}

9) (a) $BD = \frac{120}{\tan 15^\circ}$
    $BD = 120 \times \tan 15^\circ = 32.15$
    $CD = 148 - BD = 116 \text{ cm to nearest cm}$
   (b) Use BC = 147.5cm, AB = 120.5cm, angle DAB = 15.5°