

1.21 (a) (i) $4\pi(6.38 \times 10^3)^2$ (M1)

Note: Award (M1) for correct substitution into the surface area of a sphere formula.

$= 512000000$ (511506576, 162817600π) (A1) (C2)

Note: Award at most (M1)(A0) for use of 3.14 for π , which will give an answer of 511 247 264.

(ii) 5.12×10^8 ($5.11506... \times 10^8$, $1.628176\pi \times 10^8$) (A1)(ft)(A1)(ft) (C2)

Note: Award (A1) for 5.12 and (A1) for $\times 10^8$.
Award (A0)(A0) for answers of the type: 51.2×10^7 .
Follow through from part (a)(i).

(b) $\frac{3.61 \times 10^8}{5.11506... \times 10^8} \times 100$ OR $\frac{3.61}{5.11506...} \times 100$ OR $0.705758... \times 100$ (M1)

Note: Award (M1) for correct substitution. Multiplication by 100 must be seen.

$= 70.6$ (%) ($70.5758...$ (%)) (A1)(ft) (C2)

Note: Follow through from part (a). Accept the use of 3 sf answers, which gives a final answer of 70.5 (%) ($70.5078...(\%)$).

Total [6 marks]