

Standard Form/Sig figs etc Ans

0 min
0 marks

1. (a) 471.03 (A1) (C1)
 (b) (i) 471 (A1) (C1)
 (ii) 4.71×10^2 or 4.71028×10^2 or 4.7103×10^2 (A1)(A1) (C2)

[4]

2. *Unit penalty (UP) applies in part (a)*

(a) $V = \sqrt{\frac{500^3}{36\pi}}$ (M1)

Note: Award (M1) correct substitution into formula.

UP $V = 1051.305\dots$ (A1)
 $V = 1051.31 \text{ cm}^3$ (A1)(ft) (C3)

Note: Award last (A1)(ft) for correct rounding to 2 decimal places of their answer. Unrounded answer must be seen so that the follow through can be awarded.

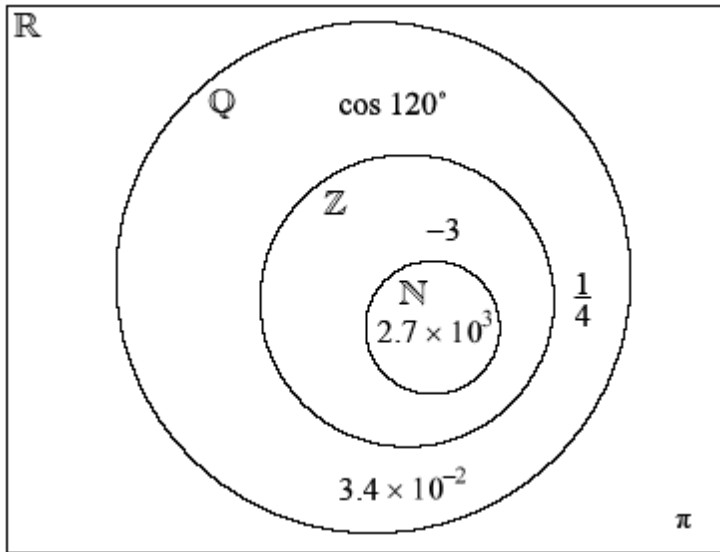
(b) 1051 (A1)(ft) (C1)

(c) 1.051×10^3 (A1)(ft)(A1)(ft) (C2)

Note: Award (A1) for 1.051 (accept 1.05) (A1) for $\times 10^3$

[6]

3.



(A1)(A1)(A1)
(A1)(A1)(A1) (C6)

Note: Award (A1) for each number placed once in the correct section. Accept equivalent forms for numbers.

[6]

4. *UP applies in part (a).*

(a) $9.5 \times 10^2 \times 1.6 \times 10^3$ (M1)

UP $= 1.52 \times 10^6 \text{ m}^2$ (A1)(A1) (C3)

*Notes: Award (M1) for multiplication of the two numbers.
Award (A1) for 1.52, (A1) for 10^6 .*

(b) $\frac{1600000 - 1520000}{1520000} \times 100$ (M1)(A1)(ft)

Note: Award (M1) for substitution in formula, (A1)(ft) for their correct substitution.

$= 5.26 \%$ (percent sign not required). (A1)(ft) (C3)

Note: Accept positive or negative answer.

[6]

5. (a) $h = \sqrt{0.03625^2 - \frac{0.05^2}{4}}$ (M1)

$= 0.02625$ (A1) (C2)

Note: Award (A1) only for 0.0263 seen without working

- (b) 0.026 (A1)(ft) (C1)
- (c) 0.0263 (A1)(ft) (C1)
- (d) 2.625×10^{-2} for 2.625 (ft) from unrounded (a) only (A1)(ft)
for $\times 10^{-2}$ (A1)(ft) (C2)

[6]

6. (a) For multiplying 2 lengths (M1)
6260.9 sq m (accept 6260 or 6261) (A1) (C2)
- (b) For multiplying each length by 100 (M1)
Note: Award (M0)(A0) if multiplying their (a) by 100.
 $9140 \times 6850 = 62,609,000$ (accept 62,600,000 or 62,610,000) (A1) (C2)
- (c) 6.26×10^7 For 6.26 (A1)
For 10^7 (A1) (C2)

[6]

7. (a) $w = (2.6 \times 10^4) \times (5.0 \times 10^{-8})$
 $= 13 \times 10^{-4}$ or 0.0013 (if written as working) (A2)
 $= 1.3 \times 10^{-3}$ (A1)(A1) (C4)

Note: For incorrect answers with no working, award marks as follows:

13×10^{-4} : (A1)(A1), 0.0013: (G2), 1.3E-3: (G2), 1.3E3: (G1),

1.3×10^3 : (A2)(A0).

- (b) Statements (ii) and (iv) are incorrect. (A2)(A2) (C4)
Note: Both correct statements given with at most one extra, allow (A2).

[8]

8. (a) $\frac{x}{y} = \frac{6.4 \times 10^7}{1.6 \times 10^8}$ (M1)

$= \frac{6.4}{1.6} \times \frac{10^7}{10^8}$ (M1)

$= 4.0 \times 10^{-1}$ (accept 4×10^{-1}). (A1)(A1) (C4)

Note: Award only (G2) for 0.4 or $4E^{-1}$, assumed to be obtained from GDC.

(b) $y - 2x = 1.6 \times 10^8 - 12.8 \times 10^7$ (M1)

$= (1.6 - 1.28) \times 10^8$ (M1)

$= 0.32 \times 10^8$

$= 3.2 \times 10^7$ (A1)(A1) (C4)

*Notes: Equivalent distribution if converted to 10^7 earlier.
Award only (G2) for 32000000 or $3.2E^7$.*

[8]

9. (a) 2.79×10^{-6} (M1)(A1)

(b) 1.024×10^{-2} (Accept 1.02×10^{-2}) (M1)(A1)

[4]

10. *Unit penalty applies in part (a)*

UP (a) 6900 km (A1) (C1)

(b) $2\pi(6900)$ (M1)(A1)(ft)

Notes: Award (M1) for substitution into circumference formula, (A1)(ft) for correct substitution. Follow through from part (a).

$= 43354$ (A1)(ft) (C3)

*Notes: Follow through from part (a). The final (A1) is awarded for rounding their answer correct to the nearest km.
Award (A2) for 43400 shown with no working.*

(c) 4.3354×10^4 (A1)(ft)(A1)(ft) (C2)

*Notes: Award (A1)(ft) for 4.3354, (A1)(ft) for $\times 10^4$.
Follow through from part (b). Accept 4.34×10^4*

[6]