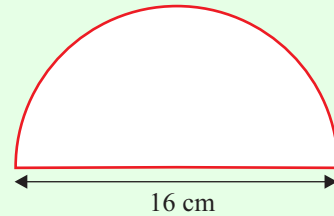


AREA & VOLUME (Q 1, PAPER 2)

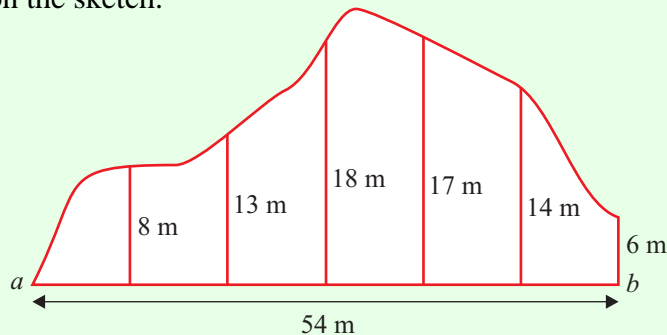
2008

1 (a) The semicircular shape shown in the diagram has diameter 16 cm.

- (i) Find the length of the perimeter of the shape, correct to the nearest centimetre.
- (ii) Find the area of the shape, correct to the nearest square centimetre.

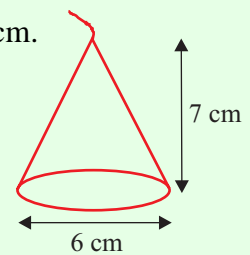


(b) The sketch shows a piece of land which borders the side of a straight road $[ab]$. The length of $[ab]$ is 54 m. At equal intervals along $[ab]$, perpendicular measurements are made to the boundary, as shown on the sketch.



- (i) Use Simpson's Rule to estimate the area of the piece of land.
 - (ii) The land is valued at €480 000 per hectare. Find the value of the piece of land. Note: 1 hectare = 10 000 m².
- (c) A wax candle is in the shape of a right circular cone. The height of the candle is 7 cm and the diameter of the base is 6 cm.

- (i) Find the volume of the wax candle, correct to the nearest cm³.
- (ii) A rectangular block of wax measuring 25 cm by 12 cm by 12 cm is melted down and used to make a number of these candles.



Find the maximum number of candles that can be made from the block of wax if 4% of the wax is lost in the process.

ANSWERS

- | | | |
|---|----------------------------|--------------------------|
| 1 | (a) (i) 41 cm | (ii) 101 cm ² |
| | (b) (i) 678 m ² | (ii) €32,544 |
| | (c) (i) 66 cm ³ | (ii) 52 |