AREA & VOLUME (Q 1, PAPER 2)
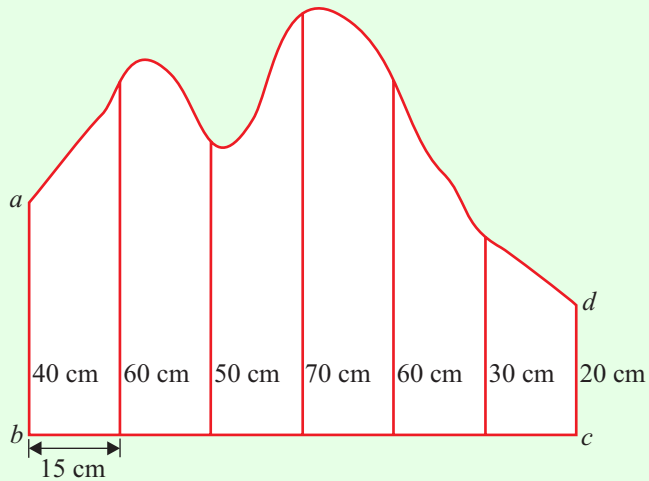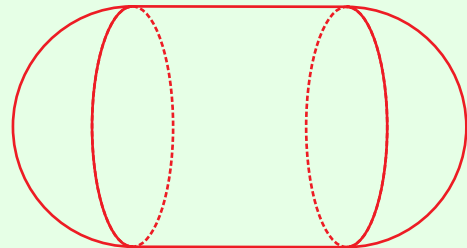
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1 (a) The area of a square is 36 cm².
       Find the length of a side of the square.

   (b) A sketch of a piece of land *abcd* is shown.

At equal intervals of 15 m along [*bc*], perpendicular measurements of 40 m, 60 m, 50 m, 70 m, 60 m, 30 m and 20 m are made to the top boundary.

Use Simpson's Rule to estimate the area of the piece of land. [See Tables, page 42].

   (c) (i) Write down, in terms of π and *r*, the volume of a hemisphere with radius of length *r*.

   (ii) A fuel storage tank is in the shape of a cylinder with a hemisphere at each end, as shown.

The capacity (internal volume) of the tank is 81π m³.
The ratio of the capacity of the cylindrical section to the sum of the capacities of the hemispherical ends 5:4.

Calculate the internal radius length of the tank.

ANSWERS
1   (a) 6 cm
    (b) 4600 m²
    (c) (i) $\frac{2}{3}\pi r^3$ (ii) 3 cm