AREA & VOLUME (Q 1, PAPER 2)
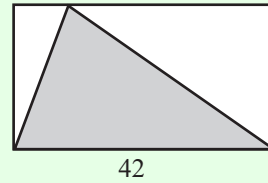
## 2006

1 (a) The diagram shows a rectangle of length 42 cm.
The area of the rectangle is 966 cm².

(i) Find the height of the rectangle.

(ii) Find the area of the shaded triangle.

42

(b) Archaeologists excavating a rectangular plot *abcd* measuring 120 m by 60 m divided the plot into eight square sections as shown on the diagram. At the end of the first phase of the work the shaded area had been excavated. To estimate the area excavated, perpendicular measurements were made to the edge of the excavated area, as shown.

a   c

22 m   30 m

16 m

18 m   10 m

24 m

60 m

b   d

120 m
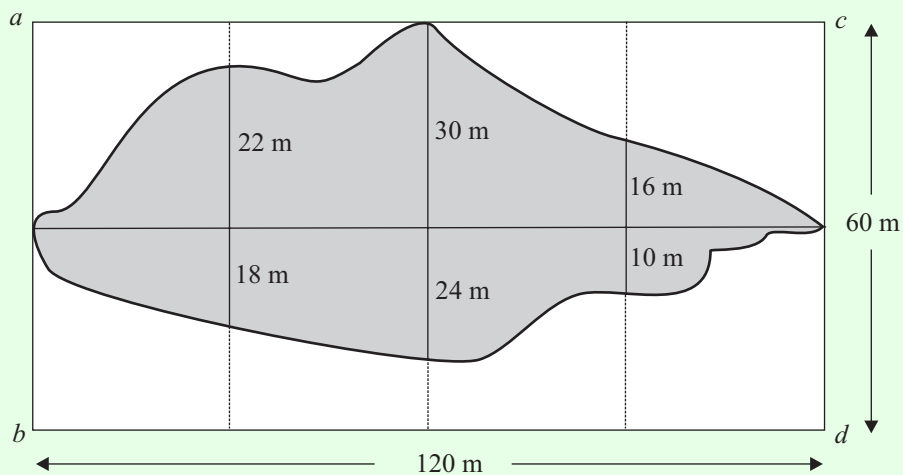
(i) Use Simpson's Rule to estimate the area excavated.

(ii) Express the excavated area as a percentage of the total area, correct to the nearest whole number.

(c) (i) The volume of a hemisphere is 486π cm³.
Find the radius of the hemisphere.

(ii) Find the volume of the smallest rectangular box that the hemisphere will fit into.

ANSWERS

1   (a) (i) 23 cm   (ii) 483 cm²
     (b) (i) 3720 cm²   (ii) 52%
     (c) (i) 9 cm   (ii) 2916 cm³