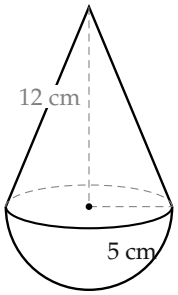
# Marked example 2

Paper 2 style · Graphic display calculator

## 2 7 marks SL 3.1 ●●○ Typical

A solid is made of a right cone on top of a hemisphere, as shown. The cone and the hemisphere both have radius 5 cm; the height of the cone is 12 cm.




(a) Find the slant height of the cone. [2]

(b) Find the volume of the solid. [3]

(c) Find the total surface area of the solid. [2]

**MARKSCHEME (a)**

$l^2 = 5^2 + 12^2$ (M1)

$l = 13$ cm A1

Total 2 marks

**MARKSCHEME (b)**

cone: $\frac{1}{3}\pi \times 5^2 \times 12 = 100\pi$ (A1)

hemisphere: $\frac{2}{3}\pi \times 5^3 = \frac{250\pi}{3}$ (A1)

$V = 576 \text{ cm}^3$ $(575.958\ldots)$ A1

Total 3 marks

**MARKSCHEME (c)**

$\pi \times 5 \times 13 + 2\pi \times 5^2$ (M1)

$361 \text{ cm}^2$ $(115\pi = 361.283\ldots)$ A1

Total 2 marks

**Note** The curved surfaces only: the flat faces are inside the solid.



Written and verified by a practising IB mathematics teacher, produced with AI assistance; solved twice and recomputed by software. Not affiliated with or endorsed by the International Baccalaureate Organization. © 2026 Hence