Volume of composite solids

6 questions | 13 marks

Equivalent correct methods earn the corresponding marks.

1. A 12 by 6 by 4 cm block has a 4 by 2 by 4 cm hole removed. Find remaining volume. [2 marks]

$288 - 32 = 256$.

Answer: 256 cm³

2. Combine non-overlapping blocks 10 by 8 by 3 cm and 3 by 4 by 5 cm. Find volume. [2 marks]

$240 + 60 = 300$.

Answer: 300 cm³

3. A hollow cylinder has outer radius 5 cm, inner radius 3 cm and height 12 cm. Find material volume. [2 marks]

$\pi(25 - 9)(12) = 192\pi$.

Answer: 192π cm^3

4. A cylinder radius 3 cm, height 8 cm supports a matching cone of height 4 cm. Find total volume. [3 marks]

Cylinder 72π; cone 12π.

Total 84π.

Answer: 84π cm^3

5. A semicylindrical solid has radius 2 cm and length 10 cm. Find volume. [2 marks]

$\frac{1}{2}\pi(2^2)(10) = 20\pi$.

Answer: 20π cm^3

6. A container measures 20 by 10 by 8 cm internally. Find capacity in litres. [2 marks]

$20 \times 10 \times 8 = 1600$ cm³.

$1600 \div 1000 = 1.6$ L.

Answer: 1.6 L