4.20 3D Shapes, Plans and Elevations: 10-minute Pack

Calculators not allowed · about 10 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

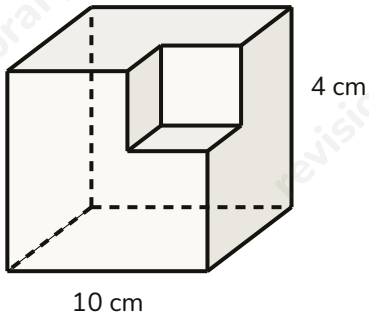
1 A rectangular block measures 8 cm by 6 cm by 3 cm. Give the three different plans (top, front, side) in terms of rectangle dimensions. List them as width x depth.

(2)

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2 A cube of side 10 cm has a smaller cube removed from one corner. The small cube has side 4 cm. Calculate the surface area of the remaining solid. (Remember new faces from the cut may be exposed.)

Diagram NOT accurately drawn

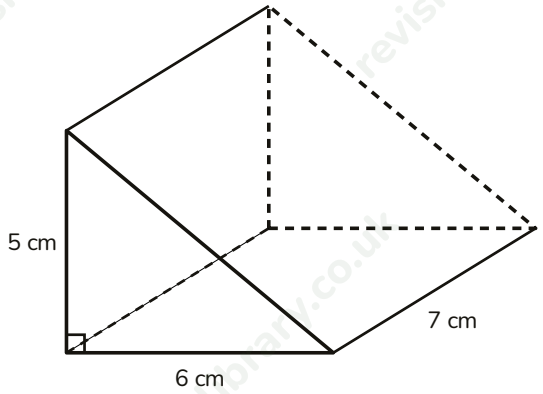


(3)

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3 A triangular prism has a right-angled triangle for its cross-section, with base 6 cm and height 5 cm. The prism is 7 cm long. Work out its volume.

Diagram NOT accurately drawn



(3)

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Mark scheme · 4.20 3D Shapes, Plans and Elevations: 10-minute Pack

Question 1

gives two of the three plans correct	**M1**
all three correct: 8 x 6, 8 x 3, 6 x 3 cao	**A1**

Answer: **Top: 8 x 6, Front: 8 x 3, Side: 6 x 3**

Question 2

calculates original cube area $6 \times 10^2 = 600$ cm² or calculates the three removed outer patches: $3 \times 4^2 = 48$ cm²	**M1**
accounts for three newly exposed faces, each 4 cm x 4 cm, with total area $3 \times 4^2 = 48$ cm²	**M1**
final surface area = $600 - 3*(4^2) + 3*(4^2) = 600 - 48 + 48 = 600$ cm² cao (the removed and newly exposed corner faces are equal in area, so the total is unchanged)	**A1**

Answer: **600 cm^2**

Question 3

cross-section area 1/2 x 6 x 5	**M1**
x 7	**M1**
105 cm³ cao	**A1**

Answer: **105 cm^3**

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