



4.12F Surface Area: Foundation Tier Practice

EDEXCEL Edexcel 1MA1 · Calculator allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

- 1** A cube has side length 4 cm. Work out the total surface area of the cube.

(Total for Question 1 is 1 mark)

- 2** A rectangular prism measures 5 cm by 3 cm by 2 cm. Calculate its total surface area.

(Total for Question 2 is 2 marks)

- 3** A cuboid has dimensions 8 m by 2 m by 1 m. Work out the total surface area of the cuboid.

(Total for Question 3 is 2 marks)

- 4** A small wooden cube has side 3 cm. Find the area of two faces of the cube.

(Total for Question 4 is 1 mark)

- 5** A storage box without its lid is a cuboid 10 cm by 6 cm by 4 cm. Calculate the surface area of the box excluding the lid (include the base and the four sides).

(Total for Question 5 is 2 marks)

- 6** A triangular prism has a triangular cross section with base 3 cm and height 4 cm. The prism is 10 cm long. Calculate the total surface area of the prism (include both triangular ends and the three rectangular faces).

(Total for Question 6 is 4 marks)

- 7** The net of a cube shows six identical squares. Each square has side 5 cm. Use the net to find the total surface area of the cube.

(Total for Question 7 is 1 mark)

- 8** A cuboid has dimensions 4 cm by 3 cm by h cm. The total surface area is 94 cm^2 . Find the value of h .

(Total for Question 8 is 2 marks)

- 9** A box measures 2 cm by 3 cm by 4 cm. It is scaled up by a linear factor of 2 (all dimensions are multiplied by 2). Work out the total surface area of the larger box.

(Total for Question 9 is 2 marks)

- 10** Two identical cubes of side 3 cm are glued together on one face so they form a single solid. Find the total surface area of the combined solid.

(Total for Question 10 is 3 marks)

Mark scheme · 4.12F Surface Area: Foundation Tier Practice

Question 1

- **B1** 96 cm^2 cao
- **Answer: 96 cm^2**

Question 2

- **M1** correct method, e.g. $2(lw + lh + wh)$ or listing faces 5×3 , 5×2 , 3×2 and doubling
- **A1** 62 cm^2 cao
- **Answer: 62 cm^2**

Question 3

- **M1** use $2(lw + lh + wh) = 2(8 \times 2 + 8 \times 1 + 2 \times 1)$ or equivalent
- **A1** 52 m^2 cao
- **Answer: 52 m^2**

Question 4

- **B1** 18 cm^2 cao
- **Answer: 18 cm^2**

Question 5

- **M1** method for lateral area + base: $2(lh + wh) + lw$ or equivalent
- **A1** 188 cm^2 cao
- **Answer: 188 cm^2**

Question 6

- **M1** area of one triangle: $\frac{1}{2} \times 3 \times 4 = 6 \text{ cm}^2$ or equivalent
- **M1** rectangular faces areas: 3×10 , 4×10 and hypotenuse $\times 10$ with hypotenuse 5 (3-4-5 triangle) giving 30, 40 and 50
- **M1** add two triangular ends: $2 \times 6 = 12$ or include both ends in total
- **A1** 132 cm^2 cao
- **Answer: 132 cm^2**

Question 7

- **B1** 150 cm^2 cao
- **Answer: 150 cm^2**

Question 8

- **M1** use $2(lw + lh + wh) = 94$ leading to $2(12 + 4h + 3h) = 94$ or equivalent setup
- **A1** $h = 5 \text{ cm}$ cao
- **Answer: 5 cm**

Question 9

- **M1** use scale factor squared: original $SA = 52 \text{ cm}^2$, new $SA = 4 \times 52$ or show calculation on new dimensions $4 \times 6 \times 8$
- **A1** 208 cm^2 cao
- **Answer: 208 cm^2**

Question 10

- **M1** area of one cube = $6 \times 3^2 = 54$, two cubes give 108 or method for counting faces
- **M1** subtract the two faces that become internal ($2 \times 9 = 18$) or recognise shared face removes both faces
- **A1** 90 cm^2 cao
- **Answer: 90 cm^2**