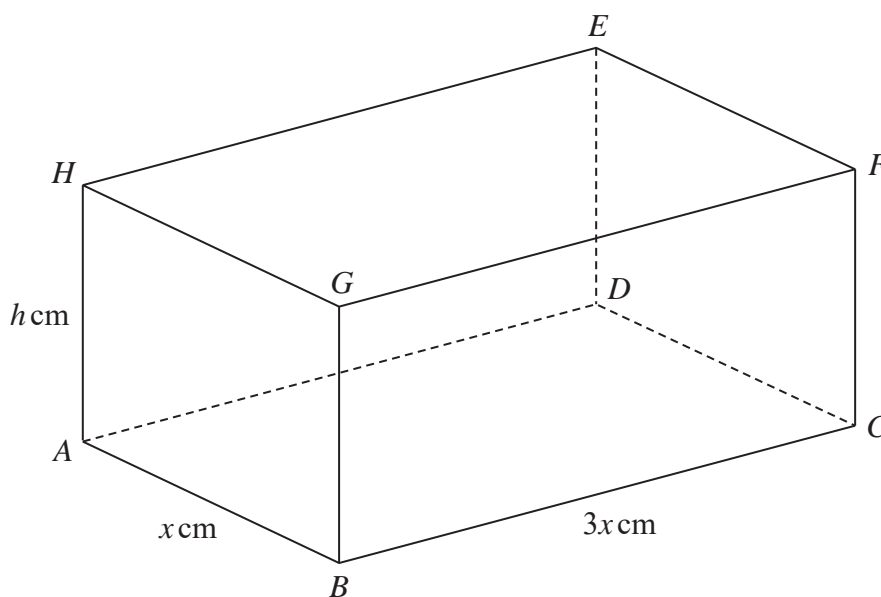


9

Diagram **NOT**
accurately drawn**Figure 3**Figure 3 shows a solid cuboid $ABCDEFGH$

$$AB = x \text{ cm} \quad BC = 3x \text{ cm} \quad AH = h \text{ cm}$$

The volume of the cuboid is 540 cm^3 The total surface area of the cuboid is $S \text{ cm}^2$

(a) Show that $S = 6x^2 + \frac{1440}{x}$ (4)

Given that x can vary,

(b) use calculus to find, to 3 significant figures, the value of x for which S is a minimum.
Justify that this value of x gives a minimum value of S . (5)

(c) Find, to 3 significant figures, the minimum value of S . (1)

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Question 9 continued

Handwriting practice area with horizontal dotted lines.



Question 9 continued

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Question 9 continued

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(Total for Question 9 is 10 marks)

P 6 1 8 8 2 A 0 2 7 3 6