

6

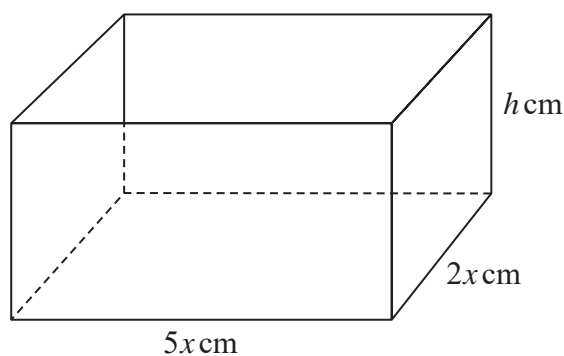
Diagram **NOT**
accurately drawn**Figure 1**

Figure 1 shows a rectangular box with length $5x$ cm, width $2x$ cm and height h cm. The box has a base but no top. The volume of the box is 1000 cm^3 and the total external surface area of the box is $S \text{ cm}^2$

(a) Show that $S = 10x^2 + \frac{1400}{x}$ (4)

Given that x can vary,

(b) find, to 3 significant figures, the minimum value of S . (5)

(c) Verify that your answer to part (b) does give the minimum value of S . (2)

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Question 6 continued

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(Total for Question 6 is 11 marks)

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