6

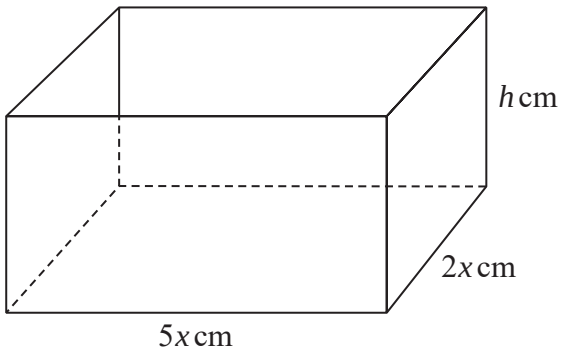

Diagram **NOT** accurately drawn

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 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)

Question 6 continued

Question 6 continued

Question 6 continued

(Total for Question 6 is 11 marks)