7

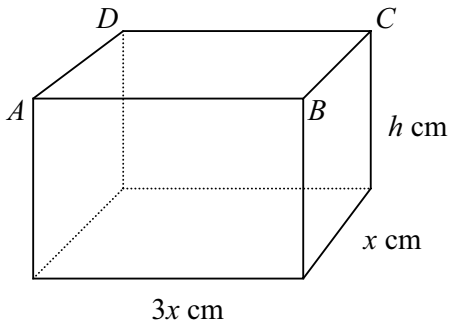

Figure 2

A rectangular box has length $3x$ cm, width x cm and height h cm, as shown in Figure 2. The top of the box, $ABCD$, is open. The volume of the box is 30 cm^3 and the total external surface area of the box is S cm^2.

(a) Show that $S = 3x^2 + \frac{80}{x}$

(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 for S.

(2)

Question 7 continued

Question 7 continued

Question 7 continued

(Total for Question 7 is 11 marks)