

7

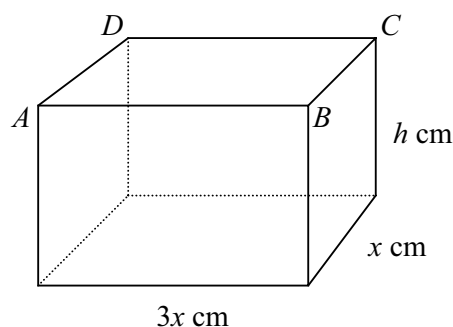


Figure 2

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 $S \text{ cm}^2$.

- (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)



[illegible]

This image shows a full page of white paper with horizontal dotted lines. The lines are evenly spaced and run across the width of the page, providing a guide for handwriting practice. There are no margins, text, or other markings on the page.

[illegible]

(Total for Question 7 is 11 marks)

