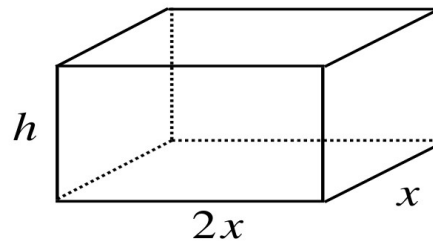


Exercise 1

Calc. : ✓

The length of the base of a cuboid is twice the width x , and its height is h centimetres, as shown in the diagram below.

Its total surface area is A cm² and its volume is V cm³.



1. Show that $A = 4x^2 + 6xh$.

2 marks

The manufacturer needs the total surface area $A = 300$ cm².

2. Find an expression for h , in terms of x .

2 marks

3. Show that the volume $V(x) = 100x - \frac{4}{3}x^3$.

1 mark

4. Determine the maximum volume possible for the cuboid and determine the value of h that achieves this.

5 marks

You should explain in your answer how you know that this will be a maximum value.