



# THE WAY

TERM 2 | THE WAY  
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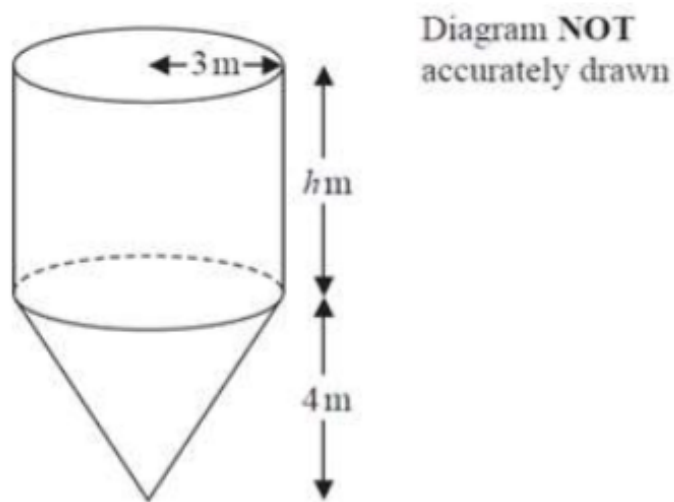
## YEAR 10 MATHEMATICS

**Students in 10A and 9X Mathematics spent a couple of lessons engaging in challenging HSC style problems to consolidate their understanding of volume and surface area of three-dimensional solids.**

These students enjoy a challenge and were very positive in their approach to these problems, collaborating effectively with one another as they were encouraged to be critical thinkers and resilient learners.

Here's a problem they worked on together. Can you solve it?

The diagram shows a container for grain.



The container is a cylinder on top of a cone.

The cylinder has a radius of 3 m and a height of  $h$  m.

The cone has a base radius of 3 m and a vertical height of 4 m.

The container is empty.

The container is then filled with grain at a constant rate.

After 5 hours the depth of the grain is 6 metres above the vertex of the cone.

After 9 hours the container is full of grain.

Work out the value of  $h$ .

Give your answer as a fraction in its simplest form.

You must show all your working.