

**Problem of the Week: Week 1 (Sum1): Year 10: Geometry:**
**Congruence, Pythagoras and Trigonometry**

- apply the concepts of congruence and similarity, including the relationships between lengths, **{areas and volumes}** in similar figures
- apply Pythagoras' Theorem and trigonometric ratios to find angles and lengths in right-angled triangles **{and, where possible, general triangles}** in two **{and three}** dimensional figures

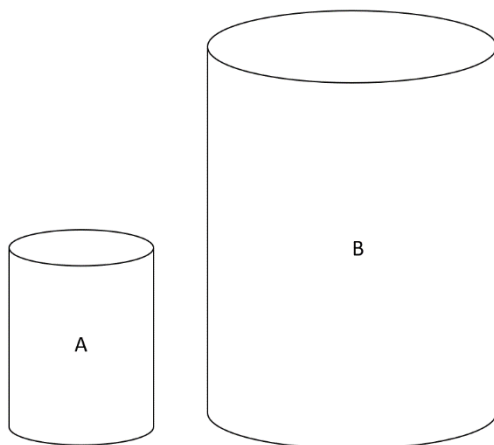
**How Far?**

Two men, starting at the same point, walk in opposite directions for four metres, then turn left and walk another three metres.

What is the distance between them?

{Hint: Draw a diagram to show the paths the two men took}

*(Taken from 'Problem Pages 11-16, published by The Mathematical Association. Edited by Barbara Cullingworth and Steve Drape. ISBN: 0 906588 52 9)*

**Similar Cylinders**


The two cylinders, A and B, are mathematically similar.

The height of cylinder B is twice the height of cylinder A.

- a) The total surface area of cylinder A is  $180 \text{ cm}^2$ .

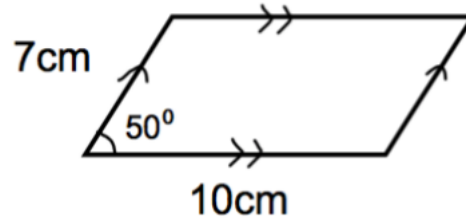
Calculate the total surface area of cylinder B.

- b) The volume of cylinder B is  $456 \text{ cm}^3$

Calculate the volume of cylinder A

**Parallelogram Trigonometry**

Shown below is a parallelogram.



Calculate the area of the parallelogram.

Task taken from [www.corbettmaths.com](http://www.corbettmaths.com)