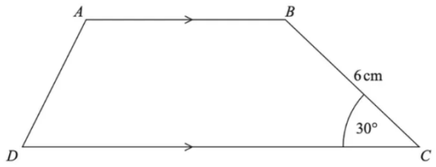
TRICKY NON-CALCULATOR QUESTIONS 2

Here is a trapezium ABCD.



The area of the trapezium is $66cm^2$

The length of AB : the length of $CD = 2:3$

Find the length of AB.

5 marks

Find the exact value of $\tan 30^0 \times \sin 60^0$

Give your answer in its simplest form.

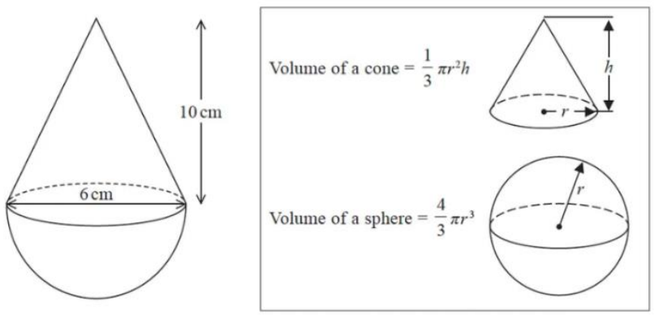
2 marks

Given that $9^{-\frac{1}{2}} = 27^{\frac{1}{4}} \div 3^{x+1}$

Find the exact value of x.

3 marks

The diagram shows a solid shape. The shape is a cone on top of a hemisphere.



The total volume of the shape is $k\pi\ cm^3$, where k is an integer

Work out the value of k.

4 marks

James and Peter cycled along the same 50 km route.

James took $2\frac{1}{2}$ hours to cycle the 50 km.

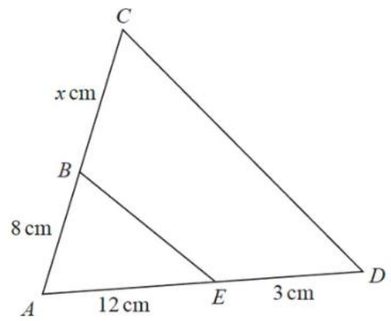
Peter started to cycle 5 minutes after James started to cycle.
Peter caught up with James when they had both cycles 15 km.

James and Peter both cycled at constant speeds.

Work out Peter's speed.

5 marks

The two triangles in the diagram are similar.



There are two possible values of x.
Work out each of these values.

4 marks

Solve algebraically the simultaneous equations

$$x^2 + y^2 = 25$$

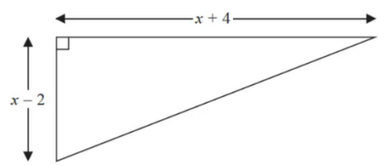
$$y - 3x = 13$$

5 marks

Find the coordinates of the turning point on the curve with equation $y = 9 + 18x - 3x^2$.
You must show all your working.

4 marks

The diagram shows a right-angled triangle.



All the measurements are in centimetres.

The area of the triangle 27.5 cm^2

Work out the length of the shortest side of the triangle. You must show all your working.

4 marks

ANSWERS