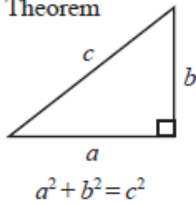


Name _____

Remove Set 1-5 Test 3

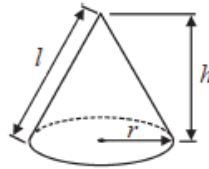
Formula Sheet

Pythagoras' Theorem



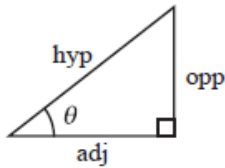
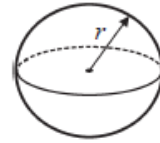
Volume of cone = $\frac{1}{3} \pi r^2 h$

Curved surface area of cone = $\pi r l$



Volume of sphere = $\frac{4}{3} \pi r^3$

Surface area of sphere = $4 \pi r^2$



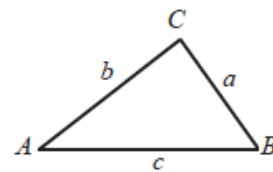
adj = hyp \times cos θ
 opp = hyp \times sin θ
 opp = adj \times tan θ

or $\sin \theta = \frac{\text{opp}}{\text{hyp}}$

$\cos \theta = \frac{\text{adj}}{\text{hyp}}$

$\tan \theta = \frac{\text{opp}}{\text{adj}}$

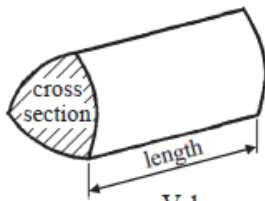
In any triangle ABC



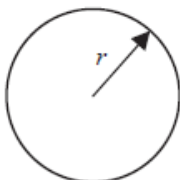
Sine rule: $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

Cosine rule: $a^2 = b^2 + c^2 - 2bc \cos A$

Area of triangle = $\frac{1}{2} ab \sin C$



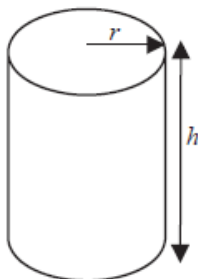
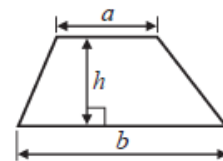
Volume of prism = area of cross section \times length



Circumference of circle = $2 \pi r$

Area of circle = πr^2

Area of a trapezium = $\frac{1}{2} (a + b) h$



Volume of cylinder = $\pi r^2 h$

Curved surface area of cylinder = $2 \pi r h$

The Quadratic Equation

The solutions of $ax^2 + bx + c = 0$, where $a \neq 0$, are given by

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

1. A circle has radius 4cm. What is its area?

.....[2]

2. A circle has radius 8cm. What is its circumference? Give your answer correct to three significant figures.

.....[2]

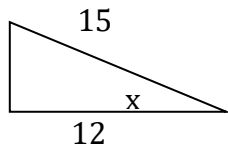
3. A circle has area 100 cm^2 . What is its radius?

.....[2]

4. The area of a circle is equal to that of a rectangle, with length 12cm and width 7cm. What is its radius?

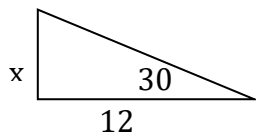
.....[2]

5. Find the angle x in the following right angled triangle



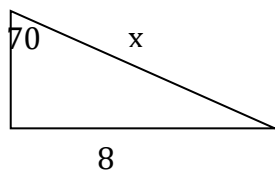
.....[2]

6. Find the length of the side marked x in the following right angled triangle.



.....[2]

7. Find the length of the side marked x in the following right angled triangle.



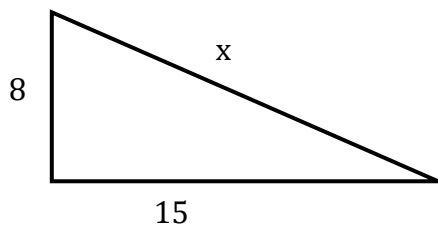
.....[2]

8. A piece of paper has width 18cm and diagonal length 30cm, as shown. Use Pythagoras' Theorem to find the length BC.



.....[2]

9. Find the value of x in the following right angled triangle.

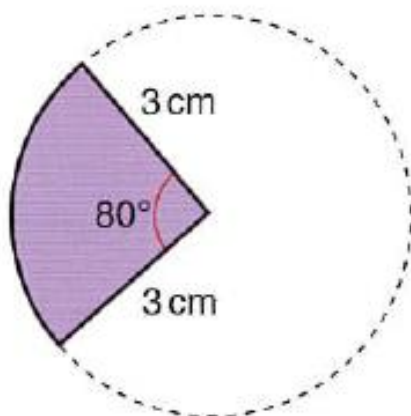


.....[3]

10. Find the distance between the two points (2,3) and (8,11).

.....[3]

11. For the diagram below, find the length of the minor arc, AB and also the area of the shaded sector. Give your answers to 1 decimal place.



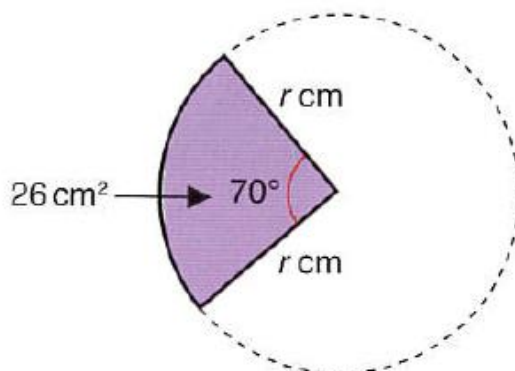
Arc Length.....[2]

Sector Area.....[2]

- 12.

For the diagram below, find the radius of the circle, given that the area of the minor sector is 26 cm^2 and that the angle subtended is 70°

.....[2]



13. A ship leaves harbour and travels 10km on a bearing of 330° . It then turns onto a bearing of 060° and travels a further 12km.

a) Draw a diagram illustrating this information.

[2]

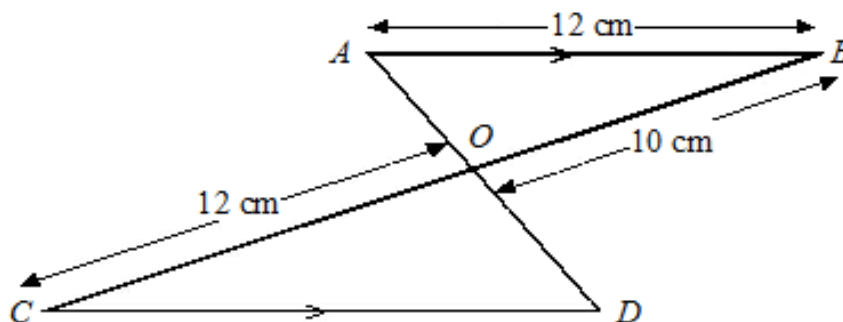
b) Find, by calculation, the distance between the ship and the harbour (no marks will be awarded for measuring from your drawing).

.....[2]

c) Find, by calculation, the bearing upon which the ship should travel in order to return directly to harbour (no marks will be awarded for measuring from your drawing).

.....[2]

14. In the diagram below, AB is parallel to CD. Use similar triangles to find the length of CD.

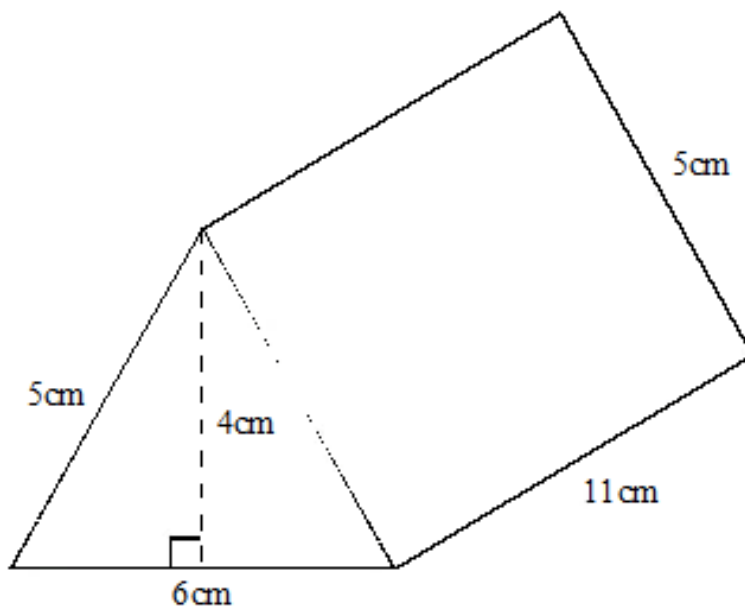


Not drawn to scale

a) CD

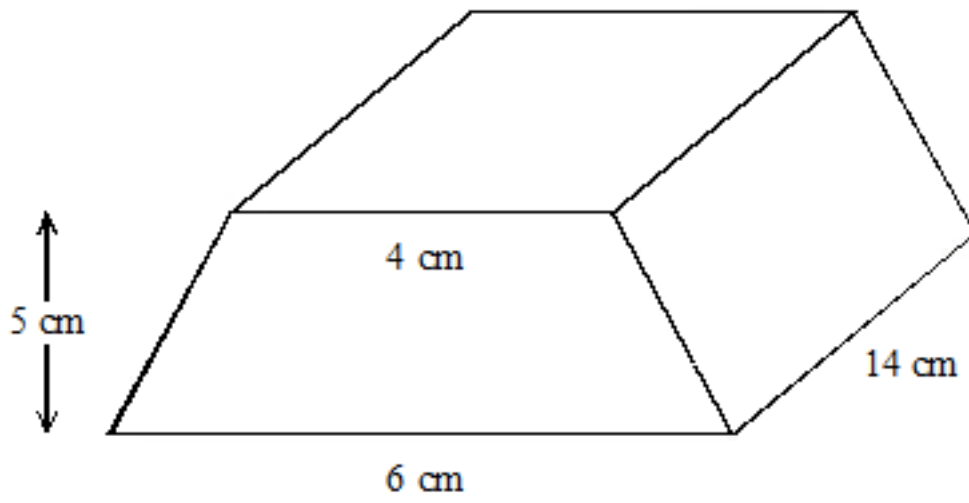
.....[3]

15. Work out the volume of the prism shown below.



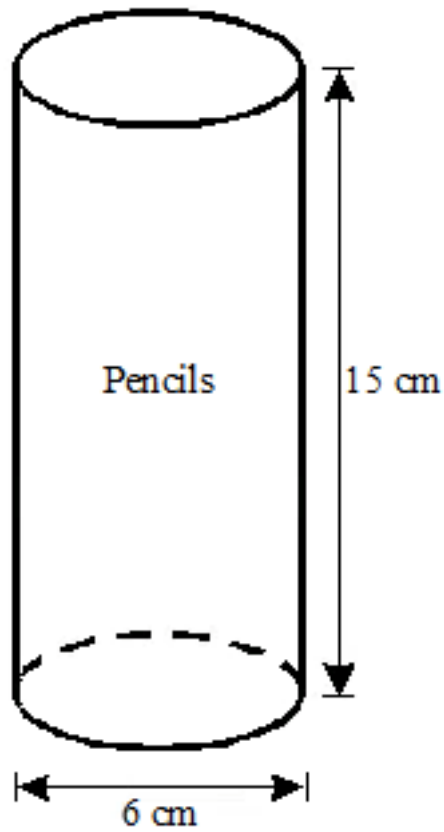
.....[3]

16. Calculate the volume of the prism shown below.



.....[4]

17.. The diagram shows a cylindrical pencil case.



Calculate the capacity of the pencil case.

.....[3]

Calculate the **total** surface area of the pencil case.

.....[3]

Total marks [50]