

FOR OFFICIAL USE

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	KU	RE
Total marks		

**2500/404**

NATIONAL  
QUALIFICATIONS  
2007

THURSDAY, 3 MAY  
11.35 AM – 12.30 PM

MATHEMATICS  
STANDARD GRADE  
General Level  
Paper 2

Fill in these boxes and read what is printed below.

Full name of centre

Town

Forename(s)

Surname

Date of birth

Day Month Year

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Scottish candidate number

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Number of seat

- 1 You may use a calculator.**
- 2 Answer as many questions as you can.
- 3 Write your working and answers in the spaces provided. Additional space is provided at the end of this question-answer book for use if required. If you use this space, write clearly the number of the question involved.
- 4 Full credit will be given only where the solution contains appropriate working.
- 5 Before leaving the examination room you must give this book to the invigilator. If you do not you may lose all the marks for this paper.



## FORMULAE LIST

Circumference of a circle:  $C = \pi d$

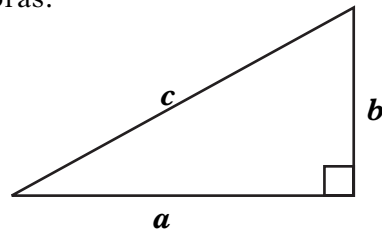
Area of a circle:  $A = \pi r^2$

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

Volume of a cylinder:  $V = \pi r^2 h$

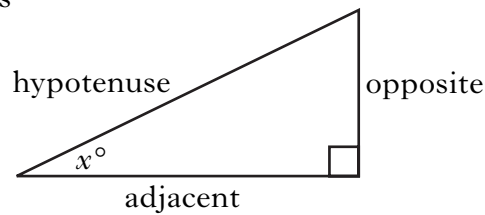
Volume of a triangular prism:  $V = Ah$

Theorem of Pythagoras:



$$a^2 + b^2 = c^2$$

Trigonometric ratios  
in a right angled  
triangle:

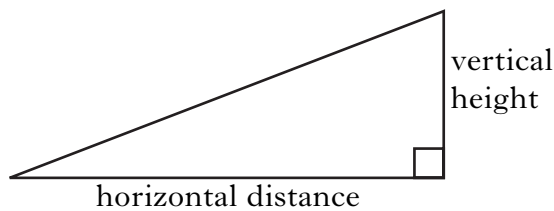


$$\tan x^\circ = \frac{\text{opposite}}{\text{adjacent}}$$

$$\sin x^\circ = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos x^\circ = \frac{\text{adjacent}}{\text{hypotenuse}}$$

Gradient:



$$\text{Gradient} = \frac{\text{vertical height}}{\text{horizontal distance}}$$

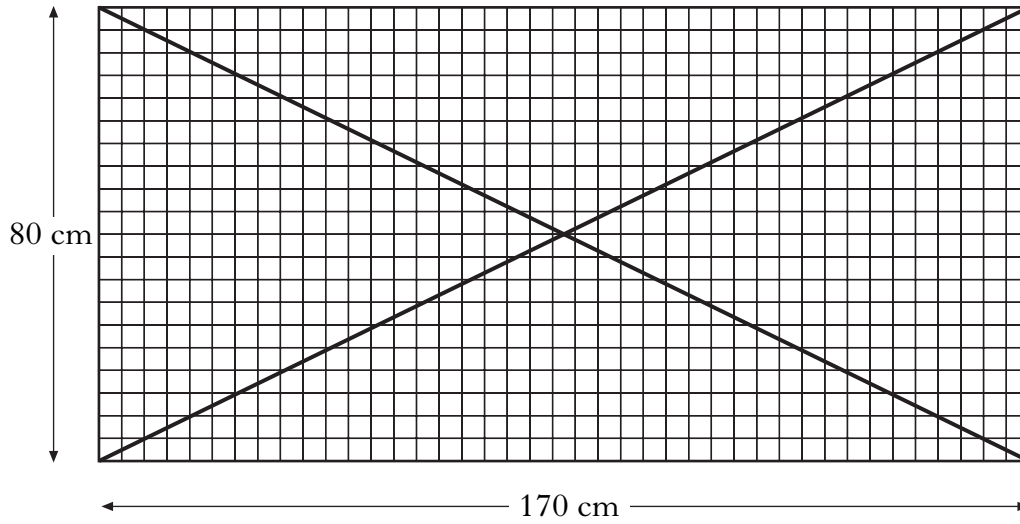






Marks

4. A rectangular metal grill for a window is shown below.  
Two diagonal metal bars strengthen the grill.



Find the length of one of the metal bars.  
Round your answer to the nearest centimetre.  
**Do not use a scale drawing.**

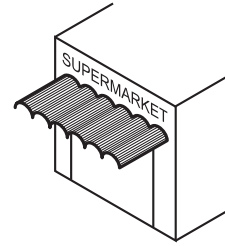
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7. A supermarket has a canopy over its entrance.



The edge of the canopy has 6 semicircles as shown below.



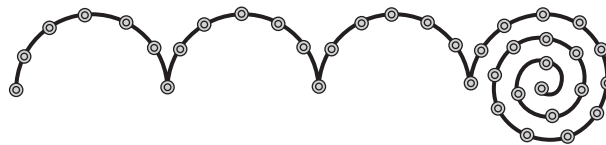
Each semicircle has a diameter of 4 metres.

(a) Find the length of the curved edge of **one of the semicircles**.

Marks

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(b) Tony attaches fairy lights to the edge of the canopy.



He has 40 metres of fairy lights.

Is this enough for the whole canopy?

**Give a reason for your answer.**

2

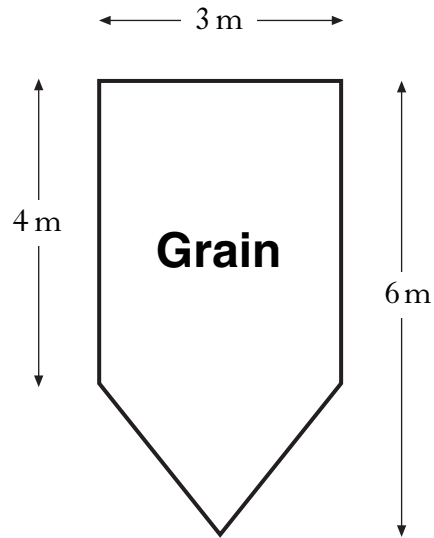
2





10. The end face of a grain hopper is shown in the diagram.

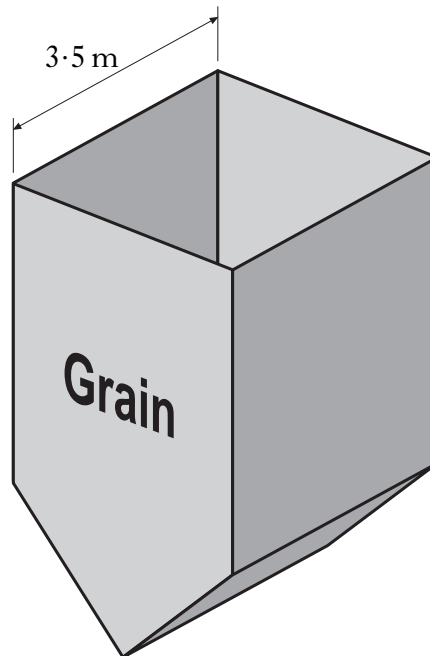
(a) Calculate the area of the end face.



Marks

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(b) The grain hopper is in the shape of a prism with a length of 3.5 metres.  
Find the volume of the hopper.





Marks

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12. The burning time,  $t$  minutes, of a candle varies directly as its height,  $h$  millimetres.

A candle with a height of 75 millimetres burns for 180 minutes.

(a) What is the burning time of a 40 millimetre candle?

3

(b) A candle burns for  $2\frac{1}{2}$  hours.

What is the height of this candle?

3

[END OF QUESTION PAPER]

**ADDITIONAL SPACE FOR ANSWERS**

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