

**OXFORD CAMBRIDGE AND RSA EXAMINATIONS**  
**General Certificate of Secondary Education**

**MATHEMATICS C**  
**(Graduated Assessment)**



**1966/2339B**

**MODULE M9 – SECTION B**

Wednesday                      **29 JUNE 2005**                      Morning                      30 minutes

Candidates answer on the question paper.

Additional materials:

- Geometrical instruments
- Tracing paper (optional)
- Scientific or graphical calculator

Candidate  
Name

--

Centre  
Number

--	--	--	--	--	--	--	--

Candidate  
Number

--	--	--	--	--

**TIME**      30 minutes

**INSTRUCTIONS TO CANDIDATES**

- Write your name, Centre number and candidate number in the boxes above.
- Answer **all** the questions.
- Write your answers on the dotted lines unless the question says otherwise.
- Use blue or black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure you know what you have to do before starting your answer.
- There is a space after most questions. Use it to do your working. In many questions marks will be given for a correct method even if the answer is incorrect.
- Do not write in the bar code. Do not write in the grey area between the pages.
- **DO NOT WRITE IN THE AREA OUTSIDE THE BOX BORDERING EACH PAGE. ANY WRITING IN THIS AREA WILL NOT BE MARKED.**

**INFORMATION FOR CANDIDATES**

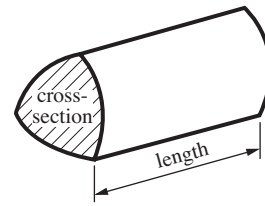
- You are expected to use a calculator in Section B of this paper.
- The number of marks is given in brackets [ ] at the end of each question or part question.
- The total number of marks for this Section is 25.
- Section B starts with question 5.
- Use the  $\pi$  button on your calculator or take  $\pi$  to be 3.142 unless the question says otherwise.

<b>FOR EXAMINER'S USE</b>	
<b>Section B</b>	

**This question paper consists of 7 printed pages and 1 blank page.**

## Formulae Sheet

**Volume of prism** = (area of cross-section)  $\times$  length

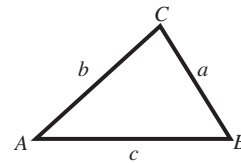


**In any triangle  $ABC$**

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

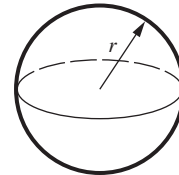
**Cosine rule**  $a^2 = b^2 + c^2 - 2bc \cos A$

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



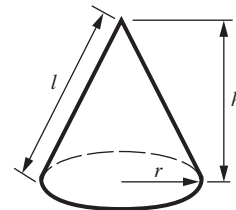
**Volume of sphere** =  $\frac{4}{3} \pi r^3$

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



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

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



**The Quadratic Equation**

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

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

5 The population of India in July 2002 was  $1.05 \times 10^9$ .

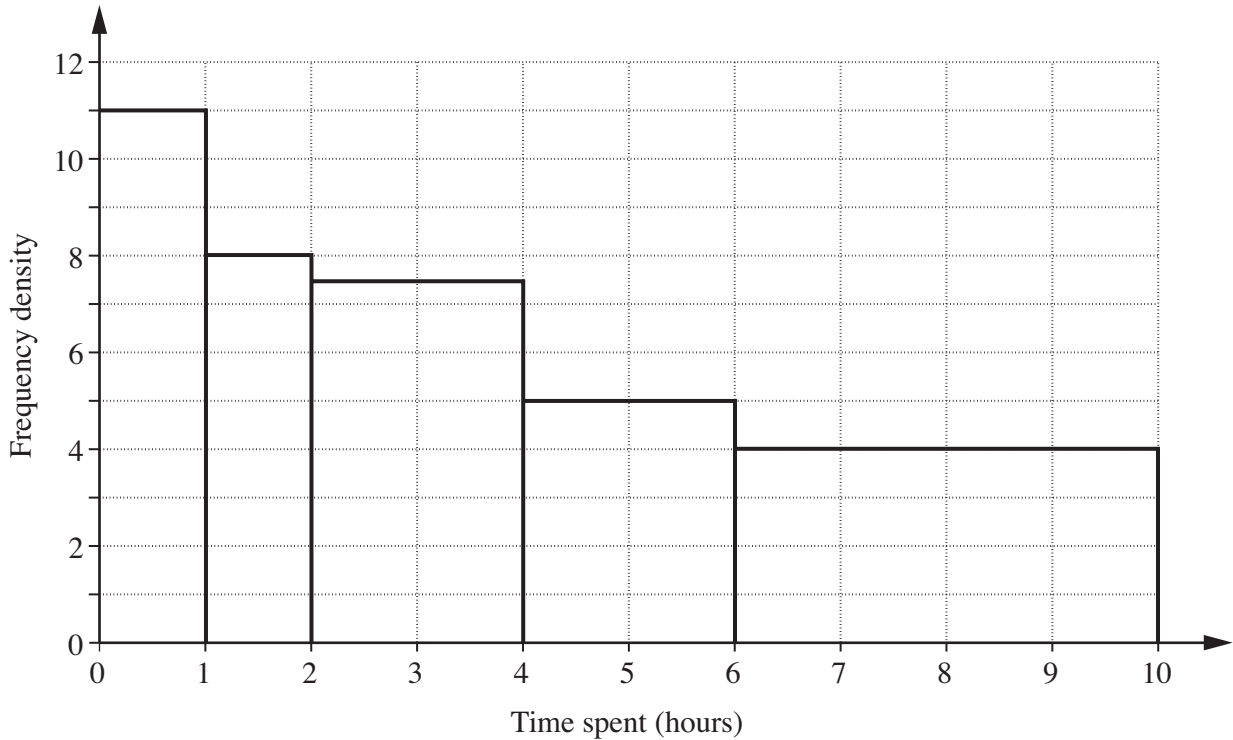
The population of Bahrain in July 2002 was  $6.56 \times 10^5$ .

How many times larger than the population of Bahrain was the population of India?

.....[2]

2
---

6 This histogram shows the distribution of times that a group of people spent using the internet one day.



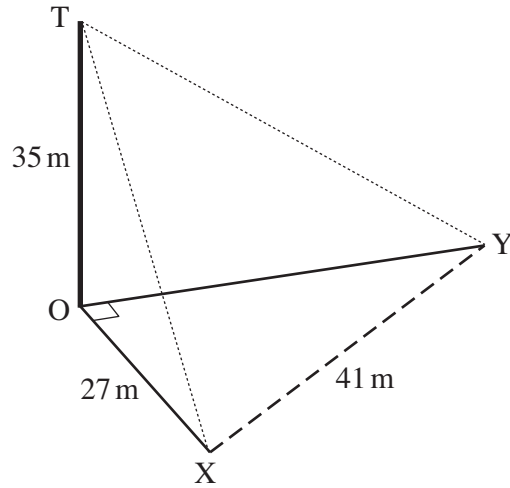
10 of the people spent between 4 and 6 hours using the internet.

Find how many people were in the group altogether.  
Show your method clearly.

.....[3]

3
---

[Turn over



TO is a vertical radio mast of height 35 m.  
 X, Y and O are on horizontal ground.  
 X is 27 m due south of the foot, O, of the mast.  
 Y is due east of O.  
 Y is 41 m from X.

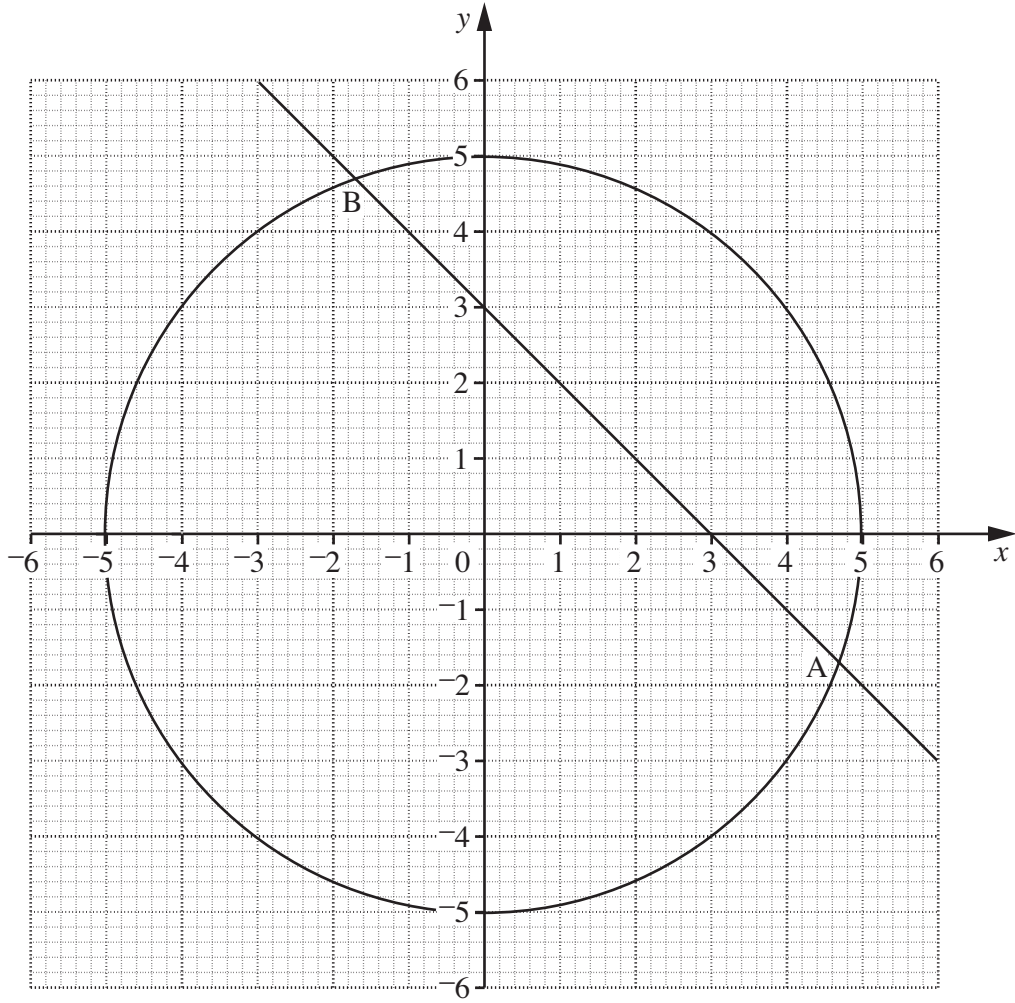
(a) Calculate the distance YO.

(a) .....m [3]

(b) Calculate the angle of elevation of T from X.

(b) .....° [3]

6
---



On the grid the straight line intersects the circle at A and B.

(a) Find the equation of the straight line through A and B.

(a) .....[2]

(b) Write down the equation of the circle.

(b) .....[2]

4
---

9 (a) The cost, £ $C$ , of painting a fence is directly proportional to its length,  $L$  metres. It costs £19.80 to paint a fence of length 6 m.

(i) Find the equation for  $C$  in terms of  $L$ .

(a)(i) .....[2]

(ii) What length of fence can be painted for £49.50?

(ii) .....m [1]

(b) A rectangular fence is 3.4 m wide and 1.8 m high. Both these measurements are given correct to the nearest 0.1 m.

Calculate the upper bound of the area of one side of this fence.

(b) .....m<sup>2</sup> [2]

5
---



(a) Maria has one attempt to win a DVD player by throwing the three dice.

What is the probability that she wins a DVD player?

(a) .....[2]

(b) Paul decides to have 5 attempts to win a DVD player.

What is the probability that Paul loses on his first four attempts and then wins on his last attempt?

(b) .....[3]

5
---

