

<b>Candidate Forename</b>		<b>Candidate Surname</b>	
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<b>Centre Number</b>						<b>Candidate Number</b>				
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**OXFORD CAMBRIDGE AND RSA EXAMINATIONS  
GENERAL CERTIFICATE OF SECONDARY EDUCATION**

**B279A**

**MATHEMATICS C  
(GRADUATED ASSESSMENT)**

**MODULE M9 – SECTION A**

**TUESDAY 23 JUNE 2009: Morning**

**DURATION: 30 minutes**

**SUITABLE FOR VISUALLY IMPAIRED CANDIDATES**

**Candidates answer on the question paper**

**OCR SUPPLIED MATERIALS:**

**None**

**OTHER MATERIALS REQUIRED:**

**Geometrical instruments**

**Tracing paper (optional)**

**WARNING**

**No calculator can be used for  
Section A of this paper.**

**READ INSTRUCTIONS OVERLEAF**

## **INSTRUCTIONS TO CANDIDATES**

- **Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes on the first page.**
- **Use black ink. Pencil may be used for graphs and diagrams only.**
- **Read each question carefully and make sure that you know what you have to do before starting your answer.**
- **Show your working. Marks may be given for a correct method even if the answer is incorrect.**
- **Answer ALL the questions.**
- **Write your answer to each question in the space provided, however additional paper may be used if necessary.**

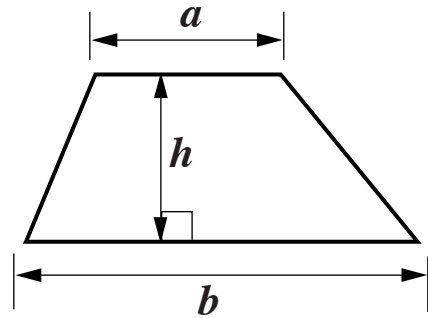
## **INFORMATION FOR CANDIDATES**

- **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.**

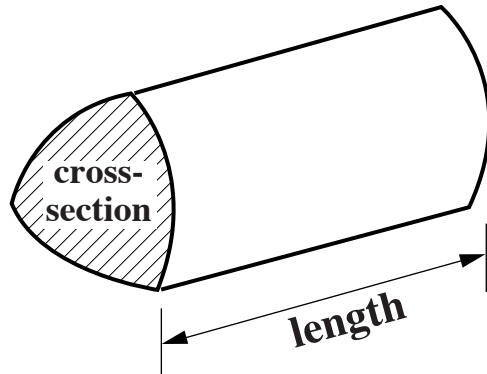
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# FORMULAE SHEET

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



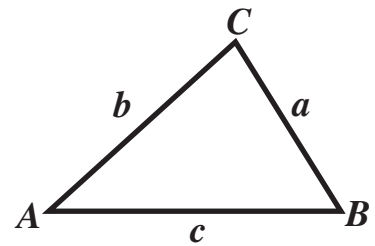
Volume of prism =  
(area of cross-section)  $\times$  length



In any triangle  $ABC$

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

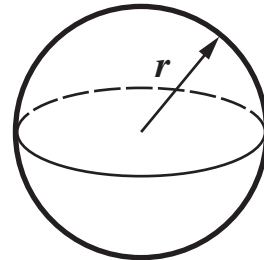
Cosine rule  $a^2 = b^2 + c^2 - 2bc \cos A$



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

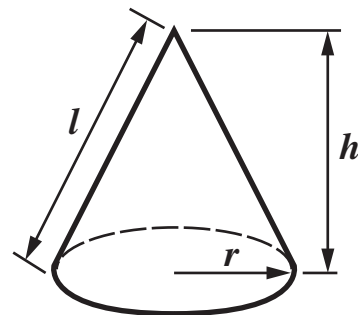
Volume of sphere =  $\frac{4}{3}\pi r^3$

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

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

**1 (a) Calculate.**

$$(8.4 \times 10^6) \div (2 \times 10^{-3})$$

**Give your answer in standard form.  
[2 marks]**

**(a)** \_\_\_\_\_

**(b) Find the value of the following.**

**(i)  $2^{-3}$**

**[1 mark]**

**(b)(i)** \_\_\_\_\_

**(ii)  $5^0$**

**[1 mark]**

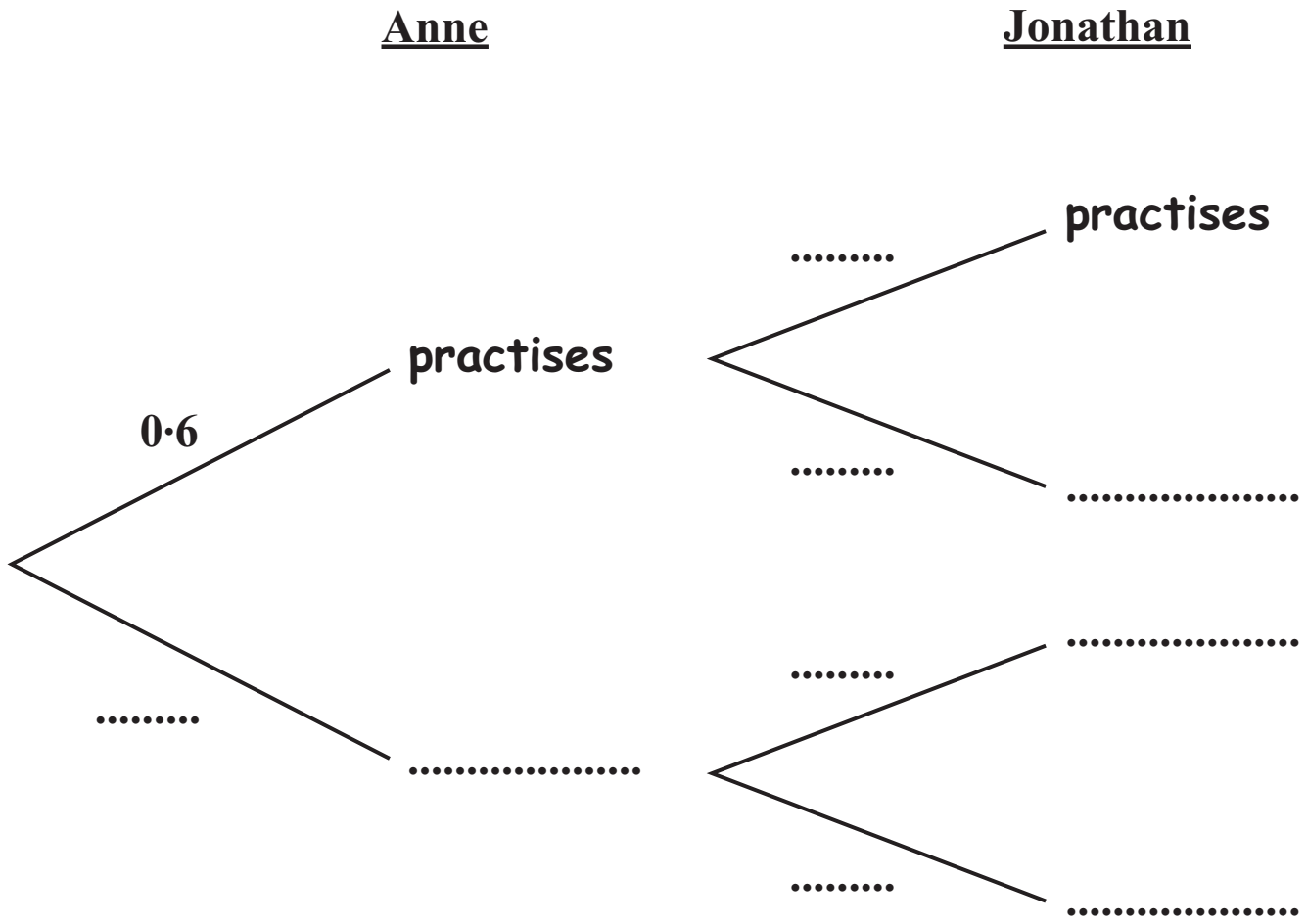
**(ii)** \_\_\_\_\_

**(iii)  $9^{\frac{1}{2}}$**

**[1 mark]**

**(iii)** \_\_\_\_\_

- 2 The probability that Anne will practise playing the piano today is 0.6.  
 The probability that Jonathan will practise playing his trumpet today is 0.9.  
 These events are independent.  
 This tree diagram represents the probabilities.



(a) Complete the tree diagram.  
 [2 marks]



**(b) Calculate the probability that at least one of Anne and Jonathan will practise today.  
[3 marks]**

**(b)** \_\_\_\_\_

**3 (a) Solve algebraically.**

$$\frac{2x + 7}{2} - \frac{3(4x + 1)}{5} = 5$$

**[4 marks]**

**(a)** \_\_\_\_\_

**(b) Factorise and solve this equation.**

$$3x^2 - 7x + 2 = 0$$

**[3 marks]**

**(b)** \_\_\_\_\_

- 4 Find the equation of the line parallel to  $y = 2x - 1$  which passes through the point (3, 11).  
Give your answer in the form  $y = mx + c$ .  
[3 marks]**
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**5**  $y \propto \frac{1}{x}$  and  $y = 10$  when  $x = 2$ .

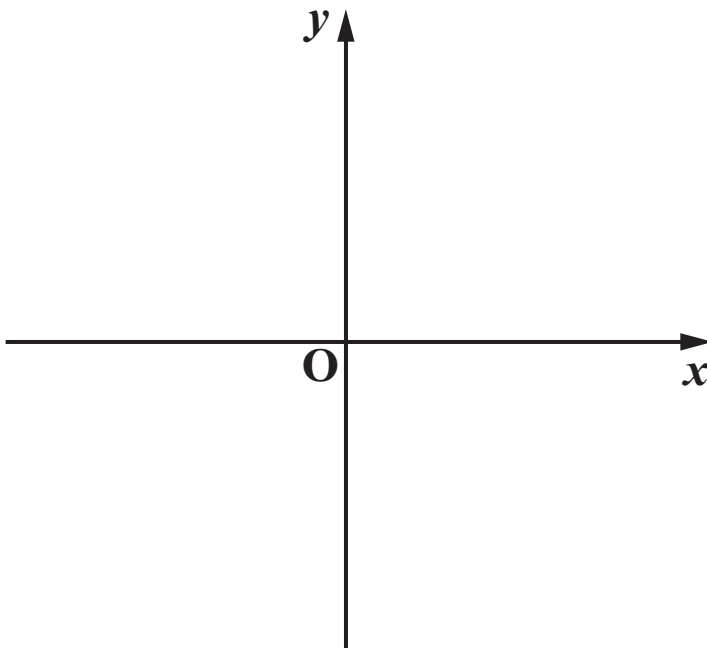
**(a) Find the equation connecting  $x$  and  $y$ .**  
**[2 marks]**

**(a)** \_\_\_\_\_

**(b) Find  $y$  when  $x = -4$ .**  
**[1 mark]**

**(b)** \_\_\_\_\_

(c) **SKETCH** the graph showing this relationship between  $x$  and  $y$ .



**[2 marks]**



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