Candidate forename		Candidate surname	

Centre number						Candidate number				

OXFORD CAMBRIDGE AND RSA EXAMINATIONS

GCSE

B279A

MATHEMATICS C

(GRADUATED ASSESSMENT)

MODULE M9 – SECTION A

MONDAY 16 JANUARY 2012: 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.

This paper has been pre modified for carrier language

READ INSTRUCTIONS OVERLEAF

DC (CW/SW) 12MEP01034 55666

INSTRUCTIONS TO CANDIDATES

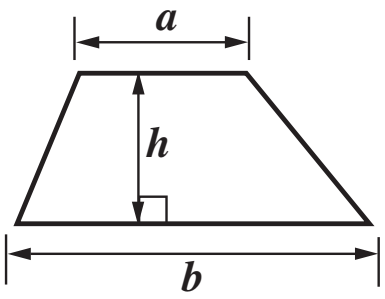
- **Write your name, centre number and candidate number in the boxes on the first page. Please write clearly and in capital letters.**
- **Use black ink. HB pencil may be used for graphs and diagrams only.**
- **Answer ALL the questions.**
- **Read each question carefully. Make sure you know what you have to do before starting your answer.**
- **Show your working. Marks may be given for a correct method even if the answer is incorrect.**
- **Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).**

INFORMATION FOR CANDIDATES

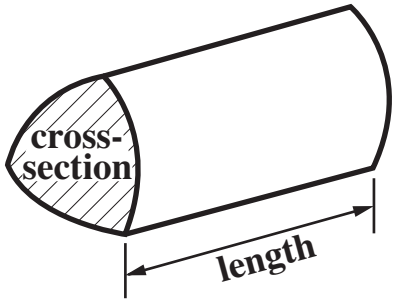
- **The number of marks is given in brackets [ ] at the end of each question or part question.**
- **The total number of marks for this Section is 25.**

FORMULAE SHEET

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



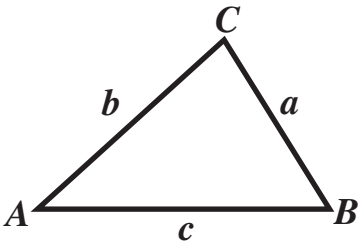
Volume of prism = (area of cross-section) × length



In any triangle ABC

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

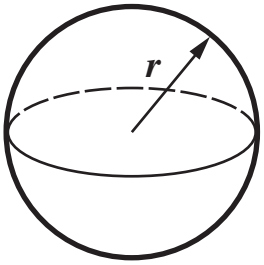
Cosine rule $a^2 = b^2 + c^2 - 2bc\cos A$



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

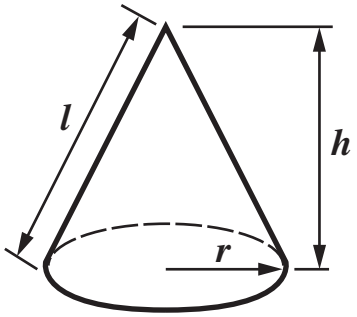
Volume of sphere $= \frac{4}{3}\pi r^3$

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



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

Curved surface area of cone $= \pi rl$



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 gift shop conducted a survey of its customers one Wednesday afternoon.**
The results gave the following probabilities about the next customer.
Assume that gender and age are independent.

Gender	Probability
Male	0·3
Female	0·7

Age	Probability
Under 16	0·15
16 to 30	0·1
31 to 60	0·35
Over 60	0·4

(a) What is the probability that the next customer will be over 30 years old?

(a) _____ **[1]**

(b) What is the probability that the next customer will be a female aged over 60?

(b) _____ **[2]**

2 Estimate.

$$\sqrt{\frac{412 \times 2100}{499}}$$

_____ **[2]**

3 (a) Expand and simplify.

$$(2x + 3)(3x - 2)$$

(a) _____ [3]

(b) Factorise.

$$4x^2 - 25$$

(b) _____ [2]

4 Write as a single power of 5.

(a) $\dfrac{5^2 \times 5^0}{5^{-4}}$

(a) _____ **[2]**

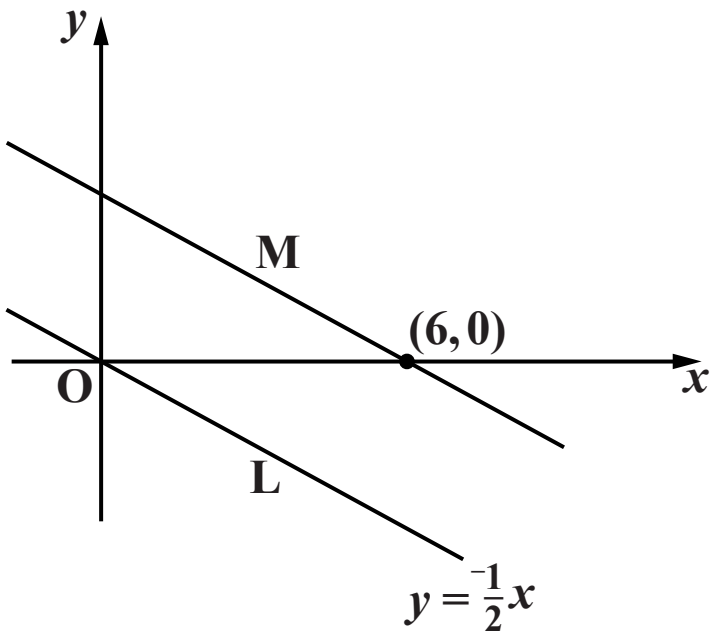
(b) $\dfrac{(\sqrt{5})^3}{5}$

(b) _____ **[2]**

5 **This sketch graph shows two parallel lines, L and M.**

Line L has the equation $y = \frac{-1}{2}x$.

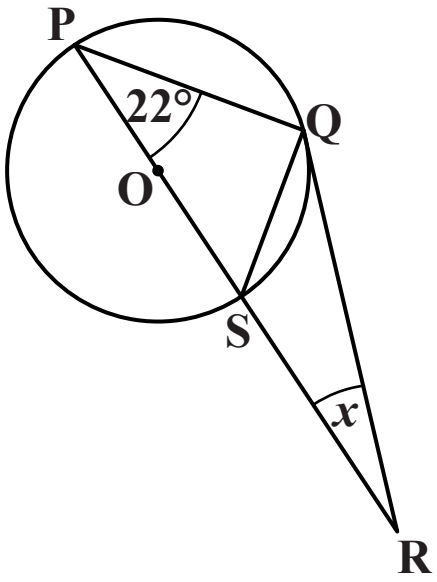
Line M intersects the x-axis at (6, 0).



Find the equation of line M.

_____ **[3]**

6 **RQ is a tangent to the circle, centre O.**
POSR is a straight line.
Angle QPS = 22°.



NOT TO SCALE

Calculate angle *x*.
Give a geometrical reason for each step of your working.

x **= _____ ° [4]**

7 This table gives some corresponding values for x and y.

x	16	25
y	24	30

(a) Given that $y \propto \sqrt{x}$, find the equation connecting x and y.

(a) _____ [2]

(b) Calculate the value of x when $y = 120$.

(b) _____ [2]

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