Rewarding Learning

General Certificate of Secondary Education
January 2011

Mathematics

Module N2 Paper 1
(Non-calculator)
Foundation Tier

[GMN21]

TUESDAY 11 JANUARY
9.15 am – 10.00 am

GMN21

TIME

45 minutes.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
Write your answers in the spaces provided in this question paper.
Answer **all eleven** questions.
Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.
You **must not** use a calculator for this paper.

INFORMATION FOR CANDIDATES

The total mark for this paper is 44.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.
You should have a ruler, compasses, set-square and protractor.
The Formula Sheet is on page 2.
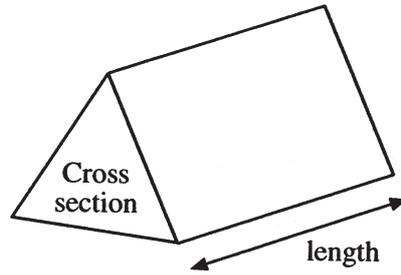
For Examiner's use only	
Question Number	Marks
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
Total Marks	

6518

Formula Sheet

Volume of prism = area of cross section $\times$ length

1 A sequence of patterns is drawn below.

$2^2 - 1^2$ $\qquad$ $3^2 - 2^2$ $\qquad$ $4^2 - 3^2$
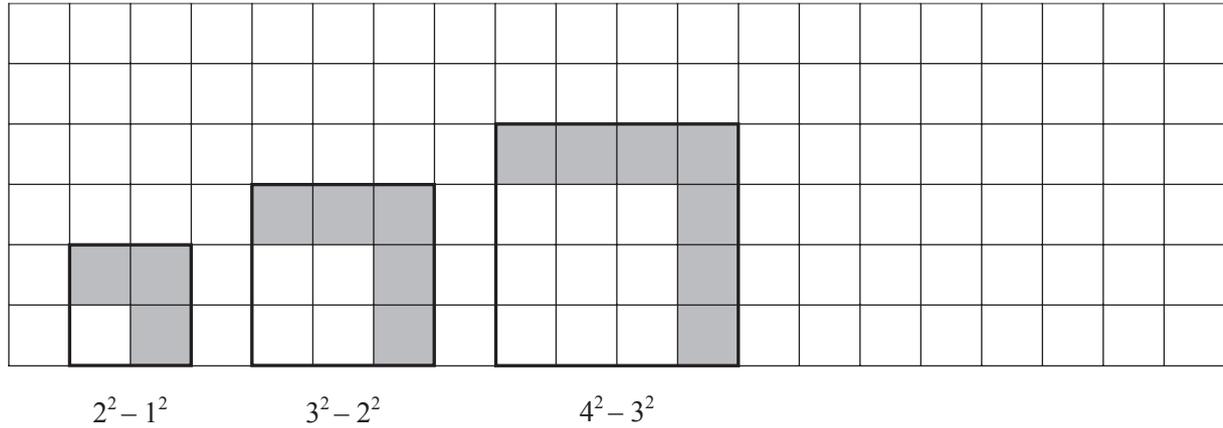
(a) Draw the pattern for $5^2 - 4^2$ [1]

(b) Fill in the blanks in the table

$$2^2 - 1^2 = 4 \; - \; 1 \; = \; 3$$
$$3^2 - 2^2 = 9 \; - \; 4 \; = \; 5$$
$$4^2 - 3^2 = 16 \; - \; 9 \; = \; 7$$
$$5^2 - 4^2 = \underline{\quad} - \underline{\quad} = \underline{\quad}$$
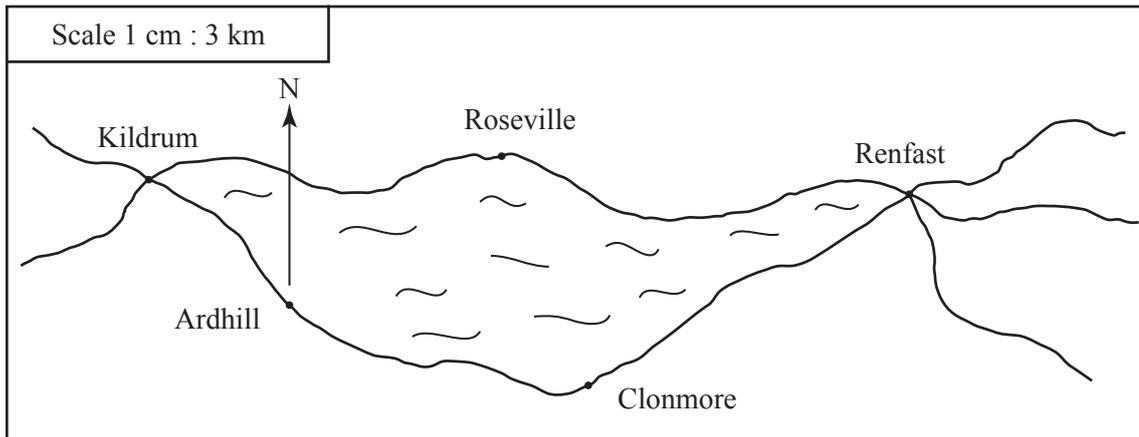
[1]

(c) Use the pattern in your table to find easily the answer to

$$500^2 - 499^2$$

Answer _____ [1]

3

[Turn over

2   The map shows the position of five towns around a lake.

Scale 1 cm : 3 km

N

Kildrum

Roseville

Renfast

Ardhill

Clonmore

(a) Use the map to measure the bearing of Roseville from Ardhill.

Answer _____ ° [1]

(b) Use the map and scale to find the direct distance across the lake between Kildrum and Clonmore.

Answer _____ km [3]

3 Work out

(a) 5^3

Answer _____ [1]

(b) 4.2 – 1.66

Answer _____ [1]

(c) 0.3 × 0.3

Answer _____ [1]

(d) the cube root of 64

Answer _____ [1]

(e) $\dfrac{3}{4} - \dfrac{5}{12}$

Answer _____ [2]

6518

5

[Turn over

4 The colours of the cars passing the school gates were noted during a school day.

Colour	Red	Blue	Black	Green	Silver	Other
Number of cars	6	12	2	10	8	2

Draw a clearly labelled pie chart for this data.

[4]
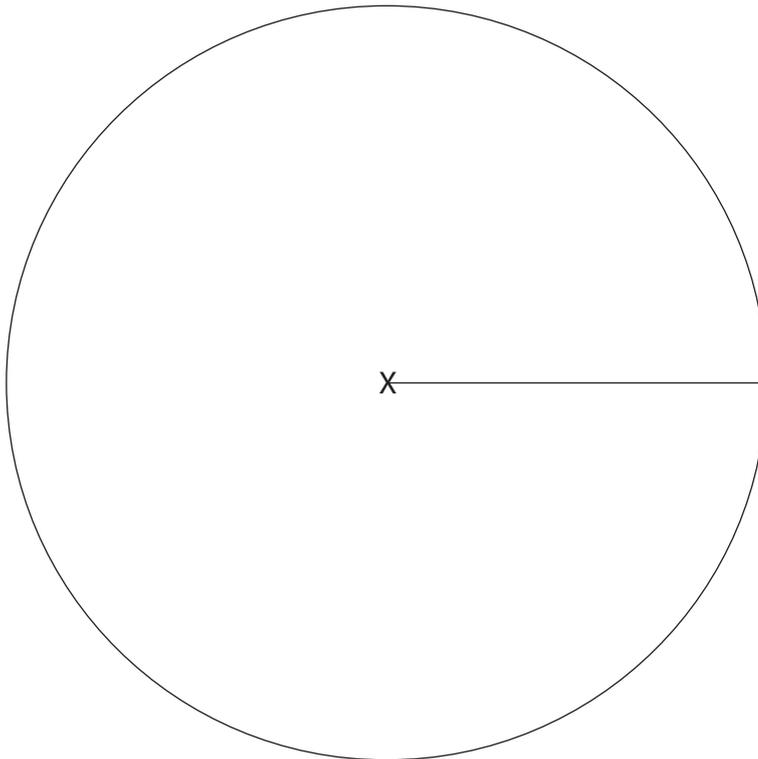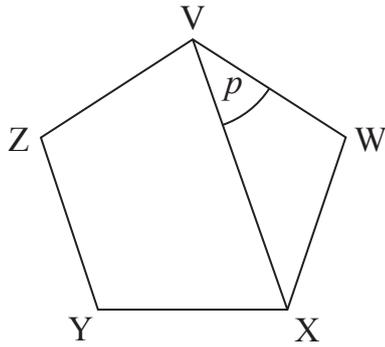
5   VWXYZ is a regular pentagon.

Diagram not
drawn accurately

Calculate angle p.
Show your working.

Answer _____ ° [3]

6   A baker uses $\dfrac{3}{5}$ of a bag of flour to make 6 muffins.

How many bags of flour will he need to make 48 muffins?

Answer _____ bags [3]

7

[Turn over

7 The school bus for Oldtown Secondary School carried a mixture of boys and girls. Some of the students were wearing scarves.

(a) Design a table in the space below which could be used to record the numbers of boys and girls and the numbers of each wearing scarves and not wearing scarves.

[3]

(b) There were 40 students on the bus. Show how they might have been recorded in your table above. [1]

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8 **(a)** Solve $18 - 3x = 2 + 5x$

Answer _____ [3]

(b) Solve $\dfrac{21 - 2x}{3} = 5$

Answer _____ [3]

9 The heights of trees in an orchard were recorded. The heights were grouped as shown in the table.

Height h (metres)	Frequency	Mid Point	
$0 < h \leq 2$	12	1	
$2 < h \leq 4$	8	3	
$4 < h \leq 6$	12		
$6 < h \leq 8$	10		
$8 < h \leq 10$	7		
$10 < h \leq 12$	1		

(a) Which class interval contains the median height?

Answer _____ [1]

(b) Complete the table and hence find an estimate for the mean height of the trees.

Answer _____ m [3]

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10 (a) Convert $0.6\,m^3$ into cm^3

Answer _____ cm^3 [2]

(b) P is the point $(8, -1)$ and Q is the point $(-2, 3)$

Find the co-ordinates of the midpoint of the line PQ.

Answer (_____ , _____) [2]

9

[Turn over

11 Work out $5\frac{3}{4} - 2\frac{5}{6}$

Give your answer as a mixed number.

Answer _____ [3]

THIS IS THE END OF THE QUESTION PAPER

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