Rewarding Learning

Centre Number	
71	

Candidate Number

General Certificate of Secondary Education
January 2010

Mathematics

Module N2 Paper 1
(Non-calculator)
Foundation Tier

[GMN21]

GMN21

TUESDAY 12 JANUARY

9.15 am – 10.00 am

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.

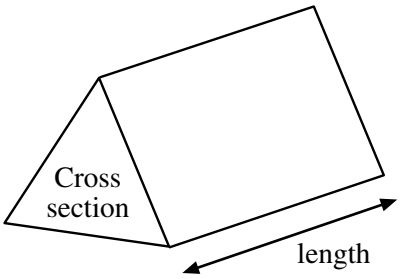
INFORMATION FOR CANDIDATES

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	

Formula Sheet

Volume of prism = area of cross section × length



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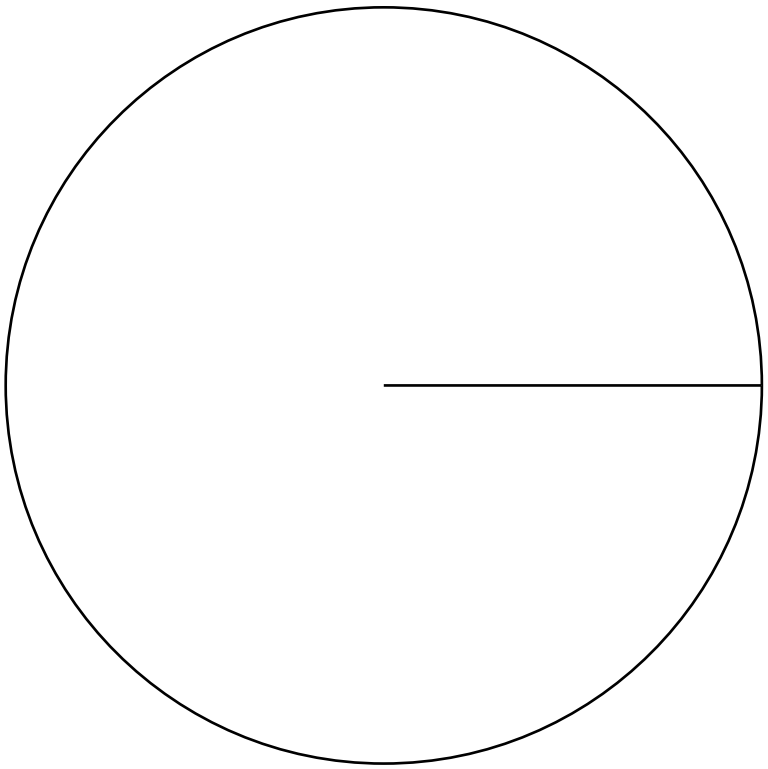
1 **(a)** Year 10 pupils were asked the name of their mobile phone company. The results for the 120 pupils are shown in the table below.

Phone company	Number of pupils
In-tune	16
4-phones	48
Aweb	20
U Text	12
Other	24

Draw a pie chart to show the information in the table.



[4]

Examiner Only	
Marks	Remark

Examiner Only	
Marks	Remark

(b) The stem and leaf diagram illustrates the reaction times of 24 students in an experiment.

Reaction times

1	1 2 5 5 7 8 9
2	0 0 0 3 4 5 6 8
3	3 4 8
4	7 9
5	1 1 9
6	4

Key: 6 | 4 = 6.4 seconds

(i) What time is the median?

Answer _____ seconds [1]

(ii) What is the range of times?

Answer _____ seconds [1]

Examiner Only	
Marks	Remark

2 **(a)** Write down the next two prime numbers after 19

Answer _____ and _____ [2]

(b) Calculate $\frac{1}{3} \times \frac{2}{5}$

Answer _____ [1]

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3 Calculate the size of angle x in the diagram.

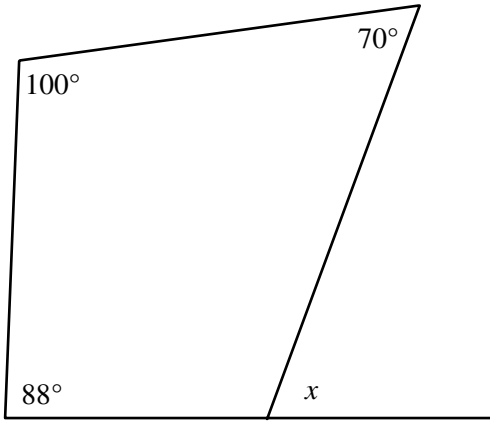

Diagram not drawn accurately

Answer _____ ° [3]

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4 Solve $7x + 5 = 3x + 8$

Answer x = _____ [3]

Examiner Only	
Marks	Remark

5 **(a)** Cars must take an MOT test when they are four years old.

Source: http://www.jasonjonesautovrmtre.co.uk/images/mot-centre.jpg

Of the cars that fail the test, $\frac{1}{3}$ of them fail on poor brakes, $\frac{1}{6}$ on bad lights and $\frac{1}{4}$ on worn tyres. The rest fail on poor steering.

What fraction fail on poor steering?

Answer _____ [3]

(b) $\frac{5}{8}$ of the length of a wall has been completed.

If there is still 30 ft to build, how long will the wall be when it is finished?

Source: http://www.goldtrowel.org/images/brickpics%20013.jpg

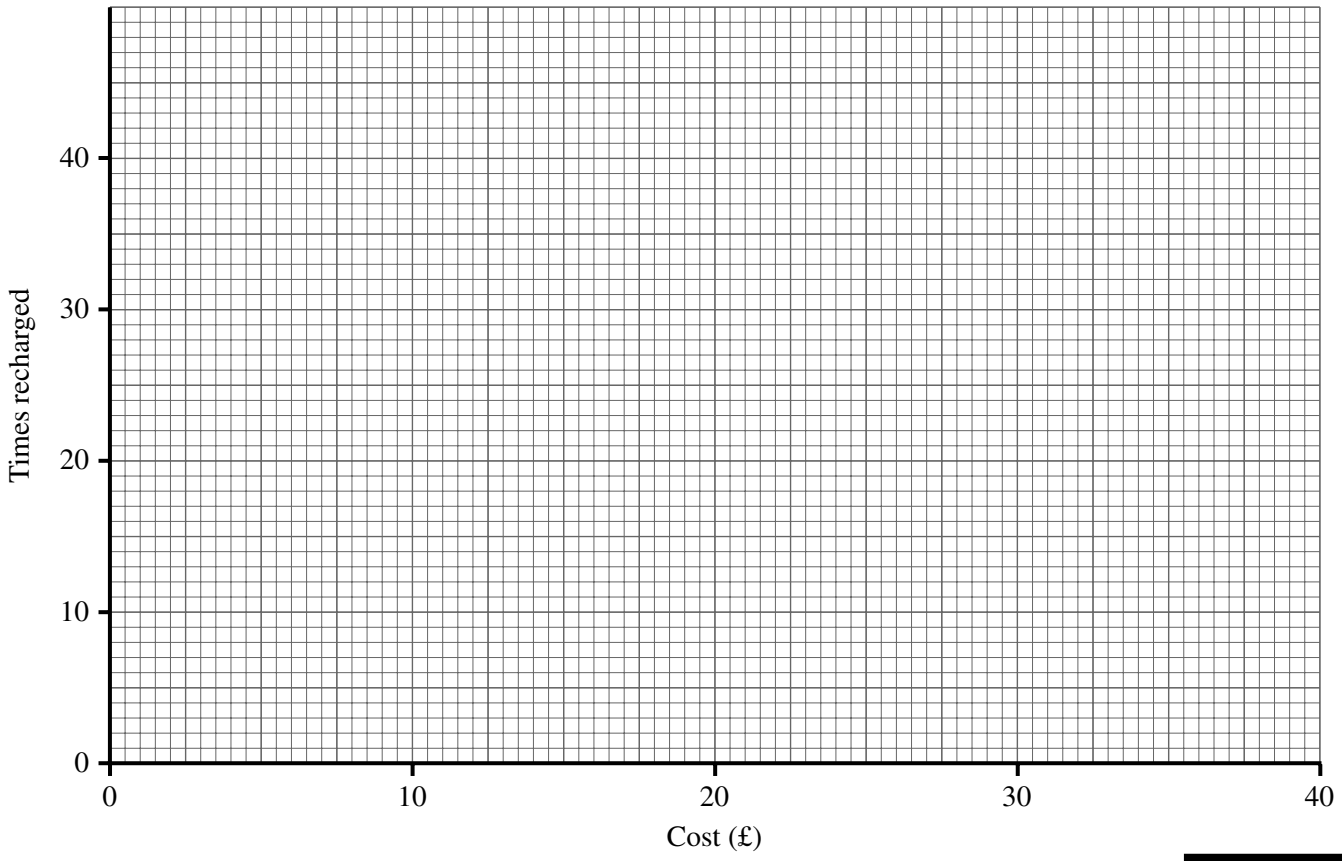
Answer _____ ft [3]

6 Seven friends compared the costs of their mobile phones and how many times they had to recharge them in a period of 2 months.

The table shows the results.

Cost (£)	17	19	21	23	25	27	30
Times recharged	38	31	28	24	20	16	8

(a) Draw a scatter graph for this data. [2]



(b) Draw a line of best fit on the scatter graph. [1]

(c) Estimate the cost of another mobile phone which had to be recharged four times.

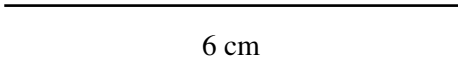
Answer £ _____ [1]

Examiner Only

Marks	Remark

7 A parallelogram has sides 6 cm and 5 cm. The shorter diagonal is 5 cm.

Make an **accurate** drawing of this parallelogram.
One side has been drawn for you.



[4]

Examiner Only	
Marks	Remark

[Turn over

Examiner Only	
Marks	Remark

8 Simplify

(a) $7\ell - 3m + 4m - \ell$

Answer _____ [2]

(b) $\frac{3a}{2} + \frac{2a}{3}$

Answer _____ [3]

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9 Jake asked a number of students in his year group how much they paid for their home computer.
The results are shown in the frequency table.

Price (£ *P*)	**Frequency**
$0 < P \leqslant 500$	5
$500 < P \leqslant 1000$	20
$1000 < P \leqslant 1500$	10
$1500 < P \leqslant 2000$	4
$2000 < P \leqslant 2500$	1

Calculate an estimate for the mean price.

Answer £ _____ [4]

10 The interior angle of a regular polygon is 140°.
How many sides has this regular polygon?

Answer _____ [3]

11 Calculate $6\frac{3}{4} - 4\frac{1}{3}$

Answer _____ [3]

Examiner Only	
Marks	Remark

THIS IS THE END OF THE QUESTION PAPER

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