



General Certificate of Secondary Education
January 2010

Centre Number

71

Candidate Number

Mathematics



Module N2 Paper 2
(With calculator)
Foundation Tier

[GMN22]

TUESDAY 12 JANUARY
10.30 am – 11.15 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 twelve** questions.

Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.

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 calculator, ruler, compasses, set-square and protractor.

The Formula Sheet is on page 2.

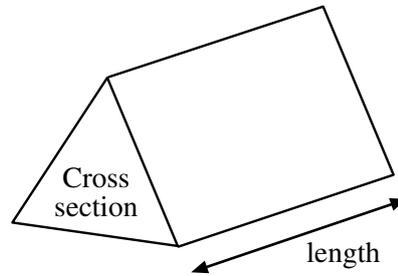
For Examiner's
use only

Question Number	Marks
1	
2	
3	
4	
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11	
12	

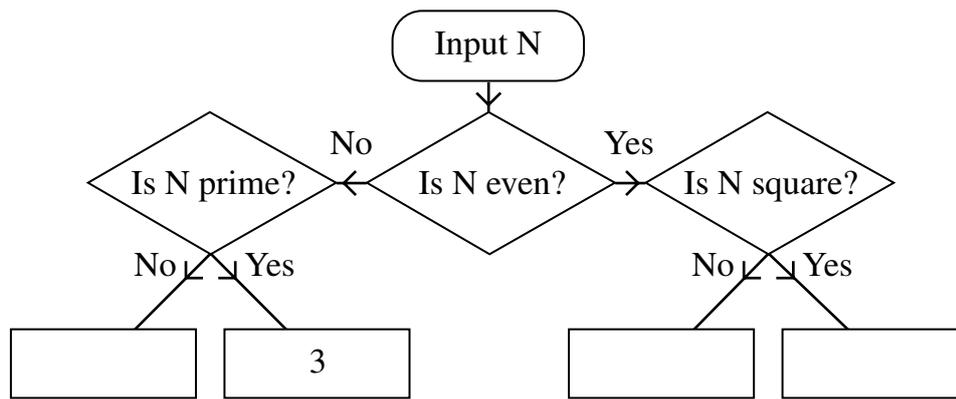
Total
Marks

Formula Sheet

Volume of prism = area of cross section \times length



1



Use the decision tree diagram to sort the integers from 1 to 10
The integer $N = 3$ has already been done.

[2]

2

Broadband for speed and savings

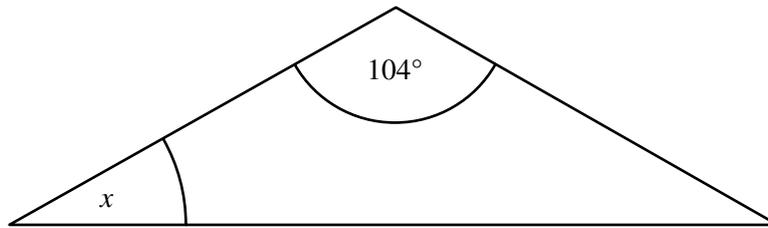
Download speed	15 Mb
Wireless router	One off payment £20
Monthly price	£16 per month for first six months £22 per month thereafter

Darragh wants Internet Broadband together with a wireless router and signs up for the 15 Mb package.

After a period of time he decides to upgrade to a new package. At this stage he has paid £270 altogether. After how many months did he decide to upgrade?

Answer _____ [4]

3 (a)

Diagram not
drawn accurately

Calculate the angle x in the isosceles triangle.

Answer _____ $^\circ$ [2]

(b) A rectangle measures 6.8 cm by 2.6 cm.
Calculate

(i) the area,

Answer _____ cm^2 [2]

(ii) the perimeter of this rectangle.

Answer _____ cm [1]

Examiner Only	
Marks	Remark

4 A taxi firm operates with a number of cars and n minibuses.

- (a) Each minibus can hold 13 passengers. Write an expression for the maximum number of passengers that can be transported by n minibuses.

Answer _____ [1]

- (b) The taxi firm has 16 times as many cars as minibuses.
Write an expression for the number of cars the taxi firm has.

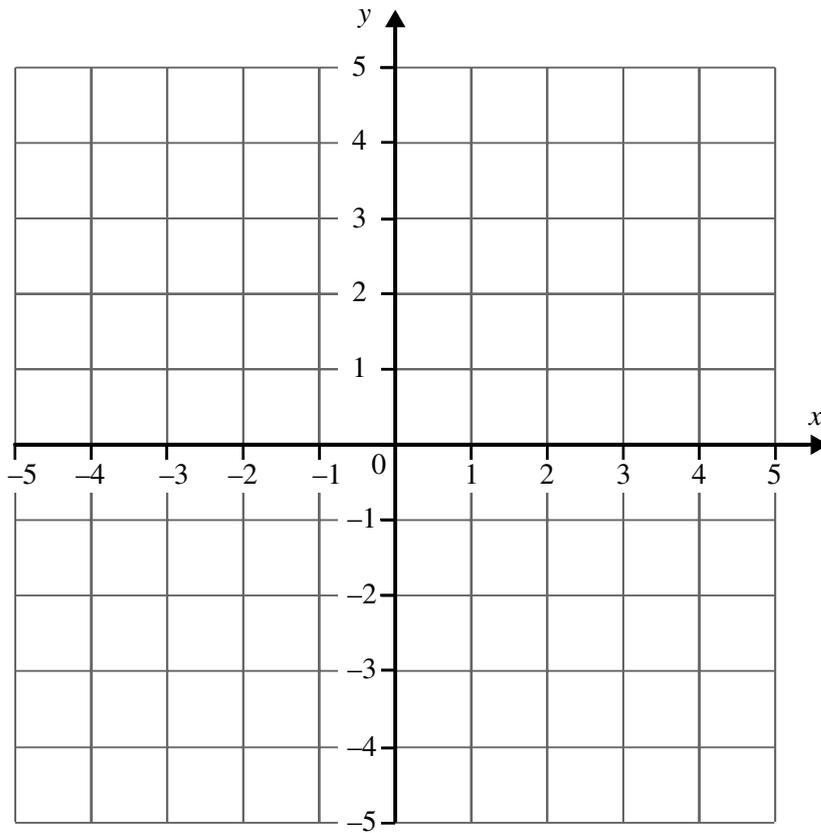
Answer _____ [1]

- (c) Each car can hold four passengers. Write an expression for the maximum number of passengers that can be transported using cars only.

Answer _____ [1]

Examiner Only	
Marks	Remark

5 (a) Draw the graph of $y = 2x - 3$ on the grid below.



[3]

(b) Solve $\frac{t}{3} = 12$

Answer $t =$ _____ [1]

Examiner Only	
Marks	Remark

- 6 (a) Find the cube root of 35 correct to two significant figures.

Answer _____ [2]

- (b) Calculate $\frac{4.3 \times 3.9}{7.8 - 1.9}$ correct to one decimal place.

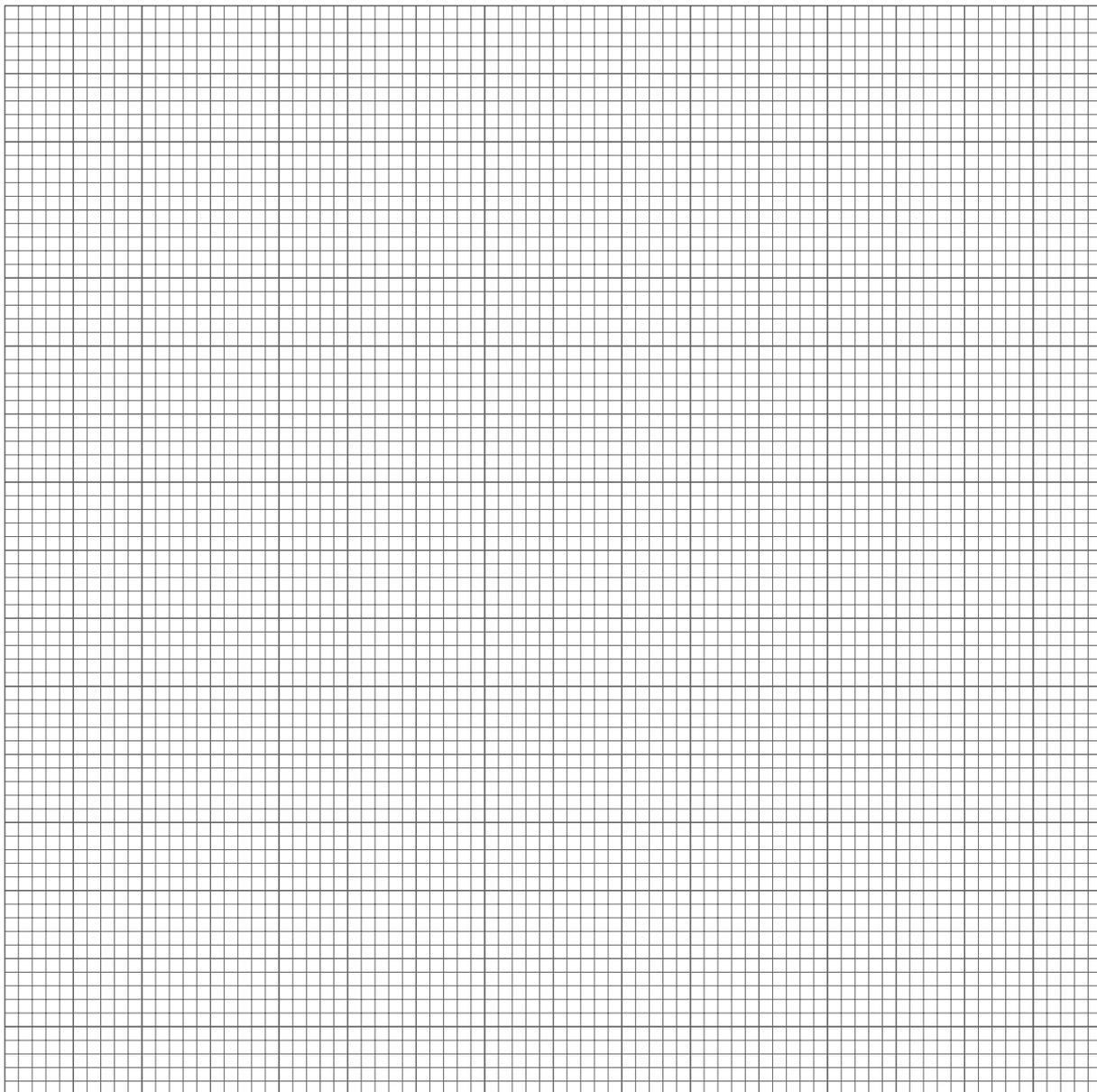
Answer _____ [2]

Examiner Only	
Marks	Remark

7 Penny recorded the play time of each of the tracks on her iPod.
The results are shown in the table below.

Time (t seconds)	$90 < t \leq 120$	$120 < t \leq 150$	$150 < t \leq 180$	$180 < t \leq 210$	$210 < t \leq 240$
Frequency	22	35	18	10	6

(a) Show this information on a grouped frequency diagram.



[3]

(b) What is the modal class interval?

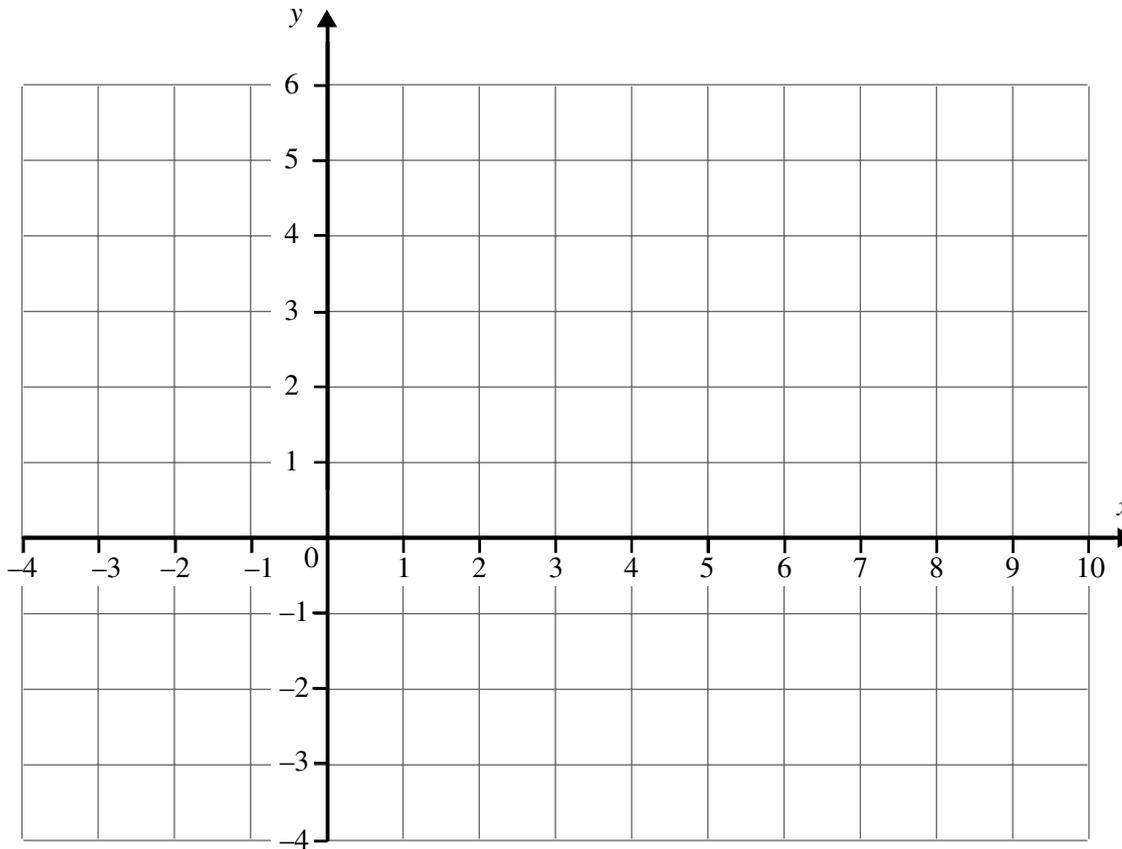
Answer _____ [1]

Examiner Only	
Marks	Remark

8 (a) Change 4.6 m^2 into cm^2 .

Answer _____ cm^2 [2]

(b)

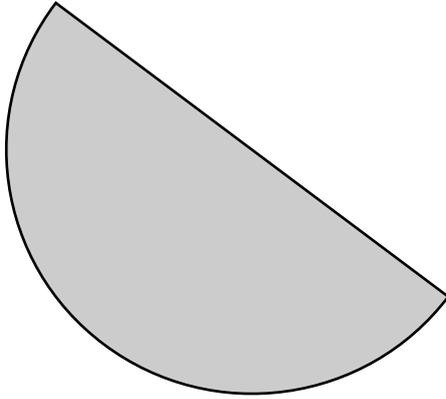


G is the point $(-2, 4)$. H is the point $(8, -2)$.
Find the co-ordinates of the midpoint of GH.

Answer (_____ , _____) [2]

Examiner Only	
Marks	Remark

9



Calculate the perimeter of a semicircle with diameter 8 cm.

Answer _____ [4]

- 10** In September, Georgina received £600 commission on sales she had made that month.
 In October she received 15% less than September.
 In November her commission **increased** by 18% and in December by 25% on the previous month.
 How much commission did Georgina receive in December?

Show all your working.

Answer £ _____ [3]

Examiner Only	
Marks	Remark

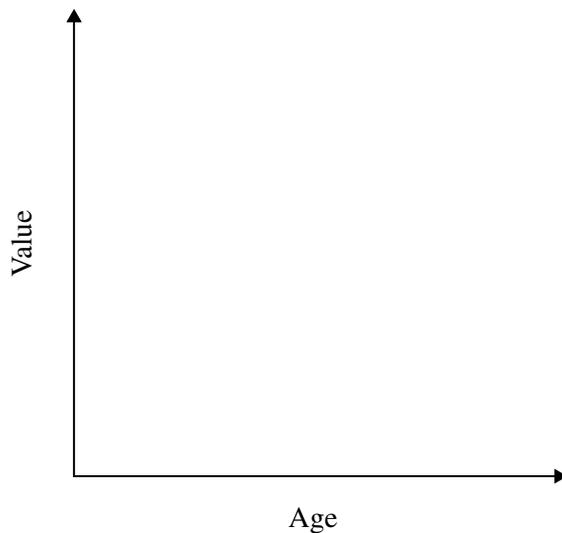
- 11 (a) What type of correlation exists between the ages of cars and their mileage travelled?

Answer _____ [1]

- (b) (i) What type of correlation exists between the ages of cars and their value?

Answer _____ [1]

- (ii) Sketch a scatter graph with at least six points to illustrate this correlation.



[1]

- (c) Write down a variable for cars which would have no correlation to the ages of the cars.

Answer _____ [1]

Examiner Only	
Marks	Remark

