



Rewarding Learning

General Certificate of Secondary Education
January 2010

Mathematics



Module N3 Paper 2
(With calculator)
Higher Tier

[GMN32]

TUESDAY 12 JANUARY
10.30 am – 11.30 am



GMN32

StudentBounty.com

71	
Candidate Number	
<input type="text"/>	

TIME

1 hour.

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

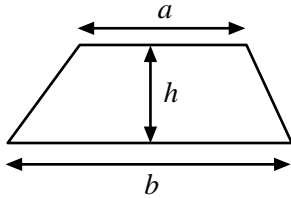
INFORMATION FOR CANDIDATES

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.

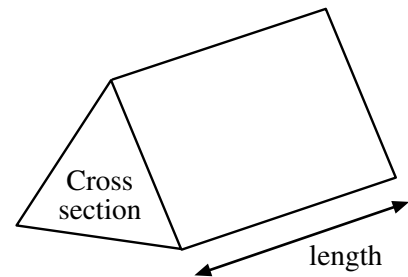
For Examiner's use only	
Question Number	Marks
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
Total Marks	

Formula Sheet

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



Volume of prism = area of cross section \times length

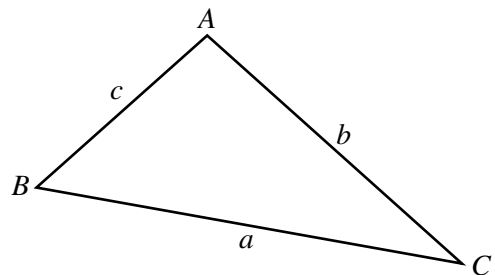


In any triangle ABC

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

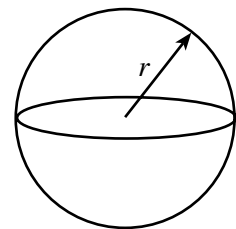
Sine rule: $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

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



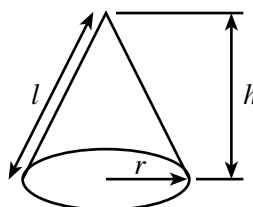
Volume of sphere = $\frac{4}{3}\pi r^3$

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



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

Curved surface area of cone = $\pi r l$



Quadratic equation:

The solutions of $ax^2 + bx + c = 0$, where $a \neq 0$, are given by

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

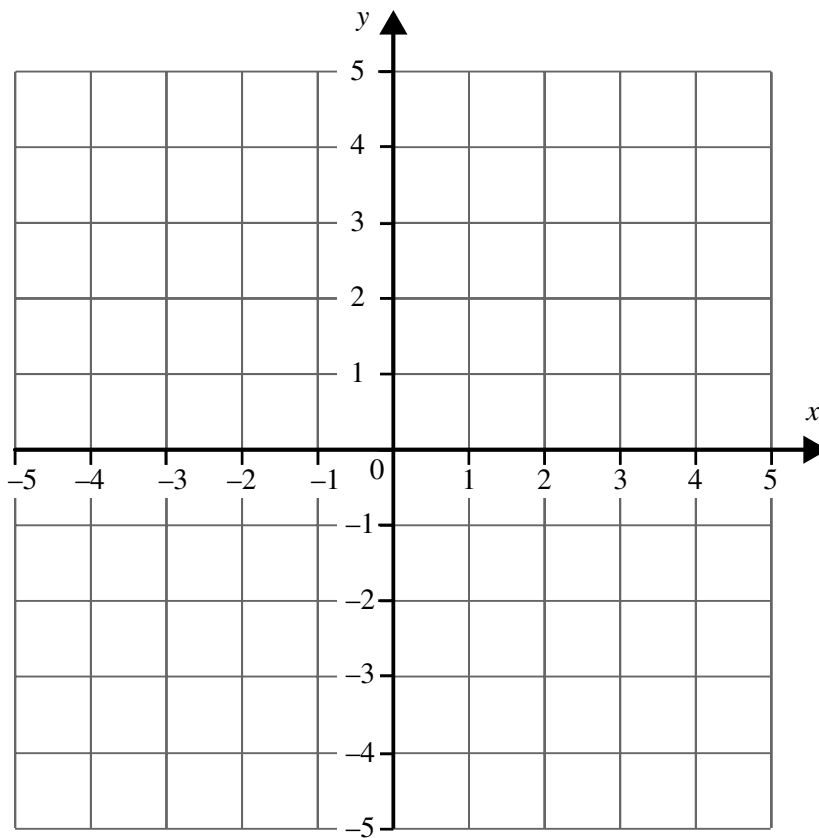
1 Calculate $\frac{4.3 \times 3.9}{7.8 - 1.9}$ correct to one decimal place.

Examiner Only

Marks Remark

Answer _____ [2]

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



[3]

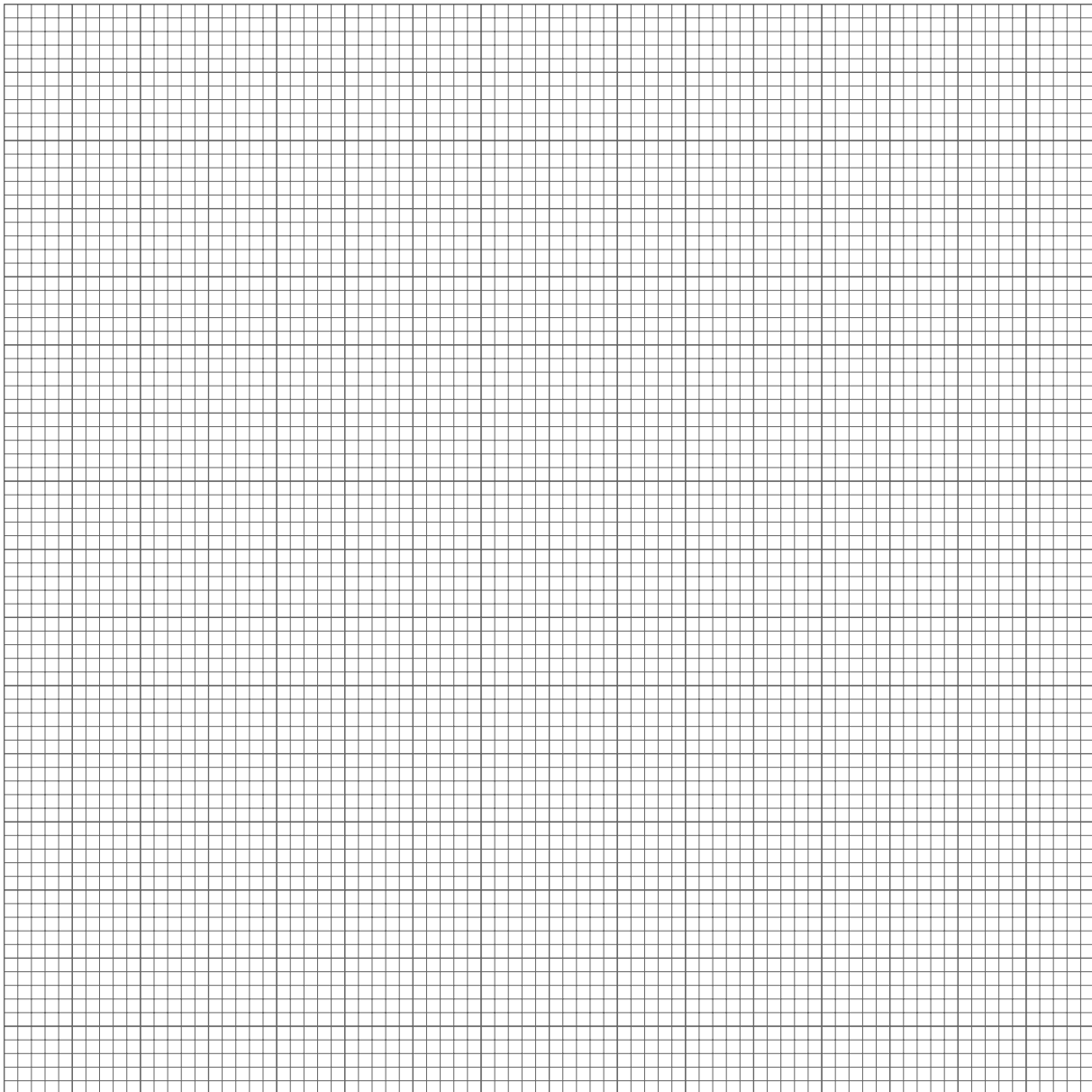
(b) Factorise $6 + 10x$

Answer _____ [1]

- 3 Penny recorded the play time of each of the tracks on her iPod.
The results are recorded 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

5 The lines PQ and RS are parallel.

Write down the size of angles a and b .

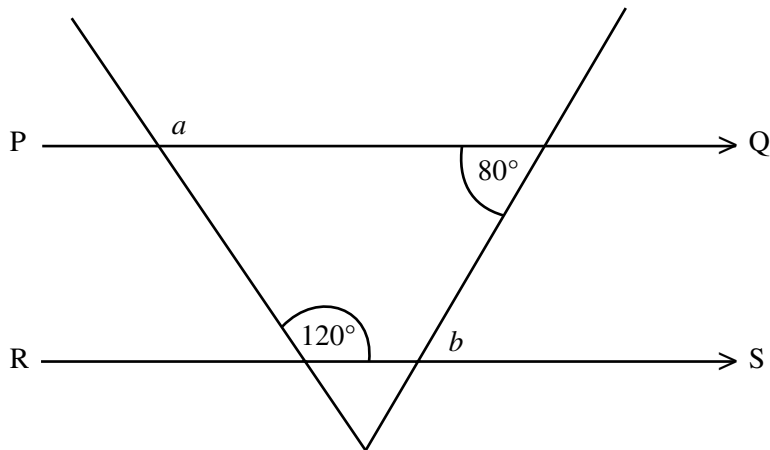


Diagram not drawn accurately

Answer $a =$ _____ $^\circ$

$b =$ _____ $^\circ$ [2]

Examiner Only	
Marks	Remark

- 9 The size of the angles, in degrees, of the triangle below are $2x$, $2x + 19$ and $x + 16$.

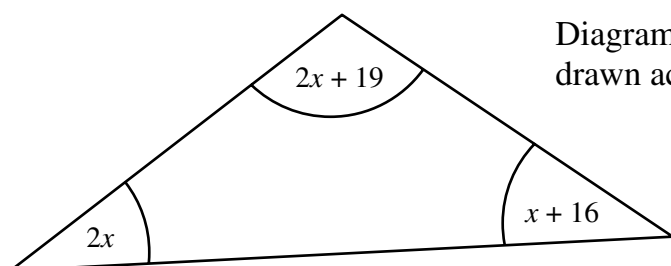


Diagram not
drawn accurately

- (a) Use the information to write down an equation in terms of x .

Answer _____ [1]

- (b) Solve your equation to find the value of x .

Answer $x =$ _____ $^{\circ}$ [2]

Examiner Only

Marks

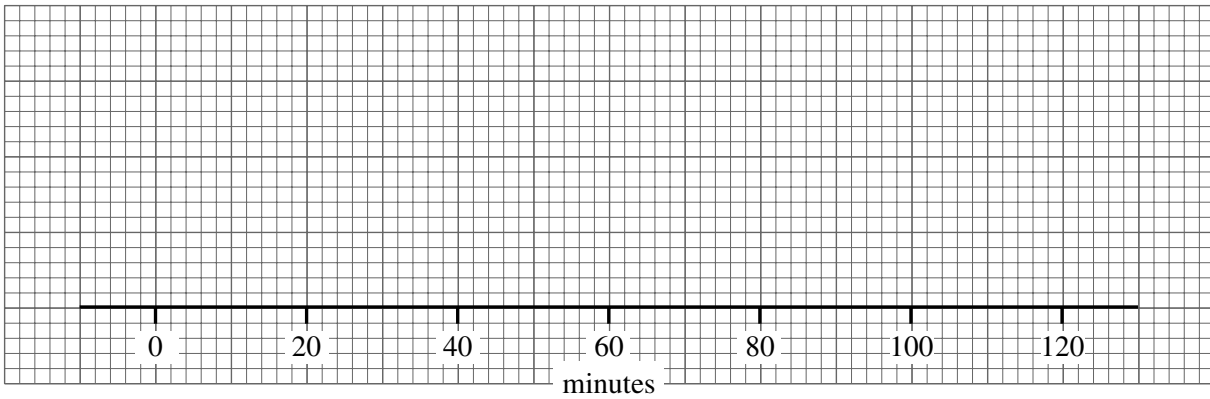
Remark

10 A tennis club holds a Junior Tournament.
The time taken to complete each match is recorded.

(a) The statistical data for the girls' matches is:

Minimum time 42 minutes
 Maximum time 104 minutes
 Lower quartile 68 minutes
 Upper quartile 90 minutes
 Median time 84 minutes

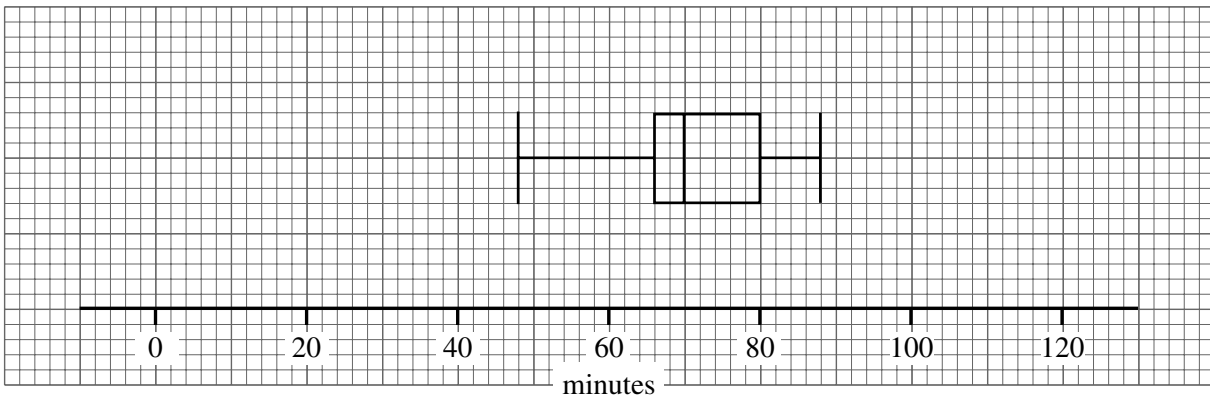
Draw a box plot to illustrate this data.



[2]

Examiner Only	
Marks	Remark

(b) Similar data is recorded for the boys' matches and a box plot drawn.



Give **two** comments on the times taken to complete the girls' matches compared to the times taken to complete the boys' matches.

_____ [1]

_____ [1]

Examiner Only	
Marks	Remark

13 (a) Expand and simplify $(3x + 5)(4x - 2)$

Answer _____ [2]

(b) Factorise $x^2 - 3x - 40$

Answer _____ [2]

Examiner Only	
Marks	Remark

THIS IS THE END OF THE QUESTION PAPER
