Candidate forename		Candidate surname	

Centre number						Candidate number				

OXFORD CAMBRIDGE AND RSA EXAMINATIONS
GENERAL CERTIFICATE OF SECONDARY EDUCATION

A501/01

MATHEMATICS A

Unit A (Foundation Tier)

MONDAY 13 JUNE 2011: Afternoon
DURATION: 1 hour

SUITABLE FOR VISUALLY IMPAIRED CANDIDATES

Candidates answer on the question paper.

OCR SUPPLIED MATERIALS:

None

OTHER MATERIALS REQUIRED:

Scientific or graphical calculator
Geometrical instruments
Tracing paper (optional)

You are permitted to use a calculator for this paper

This paper has been pre modified for carrier language
OCR is an exempt Charity

READ INSTRUCTIONS OVERLEAF

DC (LEO/JG) 11MEP06307 47993/1

INSTRUCTIONS TO CANDIDATES

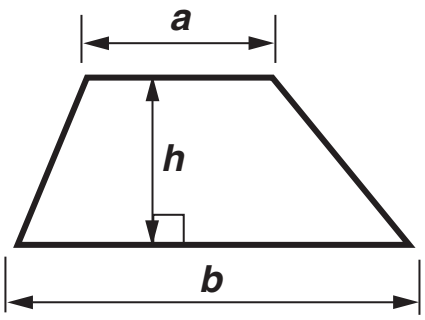
- **Write your name, centre number and candidate number in the boxes on the first page. Please write clearly and in capital letters.**
- **Use black ink. Pencil may be used for graphs and diagrams only.**
- **Read each question carefully. Make sure you know what you have to do before starting your answer.**
- **Your answers should be supported with appropriate 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).**
- **Answer ALL the questions.**

INFORMATION FOR CANDIDATES

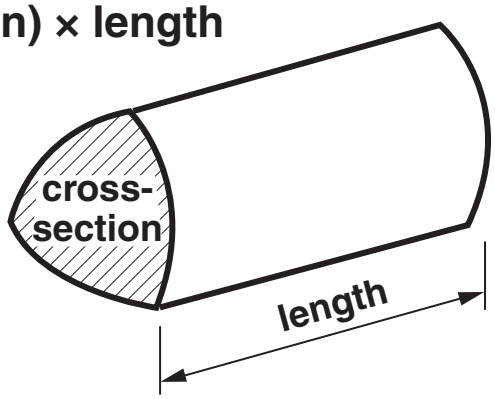
- **The number of marks is given in brackets [ ] at the end of each question or part question.**
- **The total number of marks for this paper is 60.**

FORMULAE SHEET: FOUNDATION TIER

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



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



1 The table shows the number of people living in some districts in Surrey in 2009.

District	Number of people
Elmbridge	130 600
Guildford	135 700
Runnymede	83 900
Spelthorne	92 600
Woking	92 400

(a) Which of these districts had the smallest number of people living there in 2009?

(a) _____ **[1]**

(b) There were 130 600 people in Elmbridge.

Write 130 600 in words.

_____

_____ **[1]**

(c) There were 92 600 people in Spelthorne.

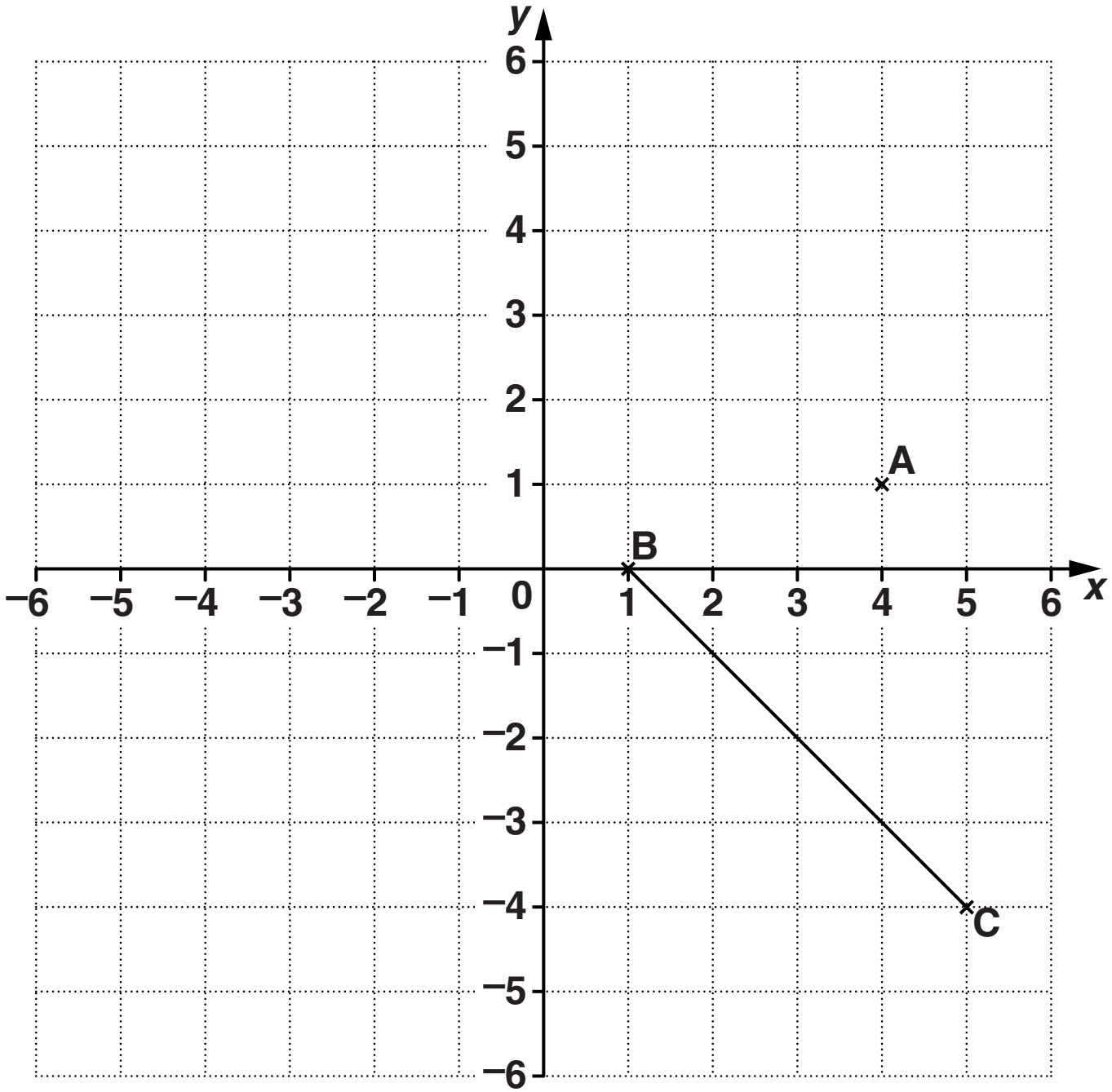
Round 92 600 to the nearest thousand.

(c) _____ [1]

(d) How many MORE people lived in Guildford than in Woking?

(d) _____ [2]

2 Use the grid below to answer the questions which follow.



(a) Write down the coordinates of point A.

(a) (_____ , _____) [1]

(b) Find the coordinates of the midpoint of BC.

(b) (_____ , _____) [1]

(c) Plot and label the points D (0, −2) and E (−3, 5). [2]

3 This table shows the average temperature in January 2010 for some places around the world.

Place	Temperature (°C)
Beijing	−3
Berlin	−1
Cairo	13
Honolulu	22
London	3
Montreal	−10
Nuuk	−8
Rome	8

(a) Which of these places had the coldest average temperature?

(a) _____ [1]

(b) Work out the difference between the average temperatures in Honolulu and Nuuk.

(b) _____ °C [2]

(c) The average temperature in Paris was 4°C warmer than in Berlin.

What was the average temperature in Paris?

(c) _____ °C [2]

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4 Jean and Colin went on a holiday in a narrowboat along the Lee river and canal.

(a) A table in the handbook gives details of some journeys on the Lee.

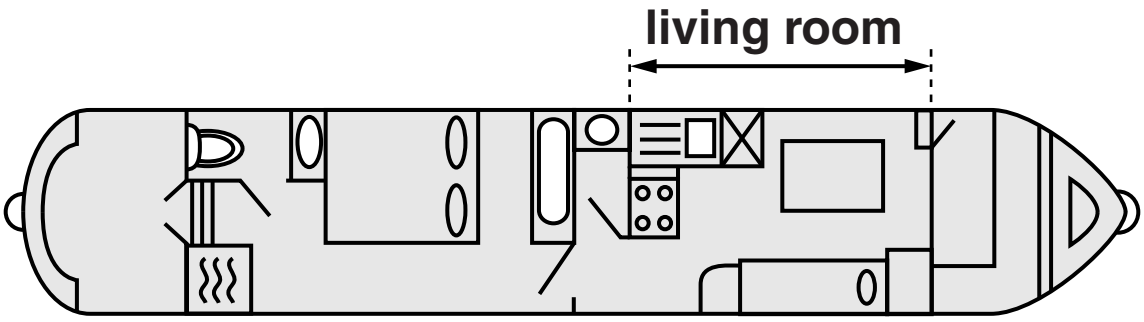
Journey	Number of locks	Number of miles	Journey time in hours
Stort Junction to Hertford	4	8	
Broxbourne to Tottenham	10	12.5	
Bow Wharf to Limehouse		2	2

The handbook gives this formula to work out the approximate journey time in hours.

Add the number of miles to the number of locks and divide the answer by 3

Use the formula to complete the table. [3]

(b) This is a plan view of their narrowboat.



The length of the narrowboat is 45 feet.

(i) Estimate the length of the living room.

(b)(i) _____ feet [2]

(ii) About how many metres is 45 feet?

(ii) _____ m [1]

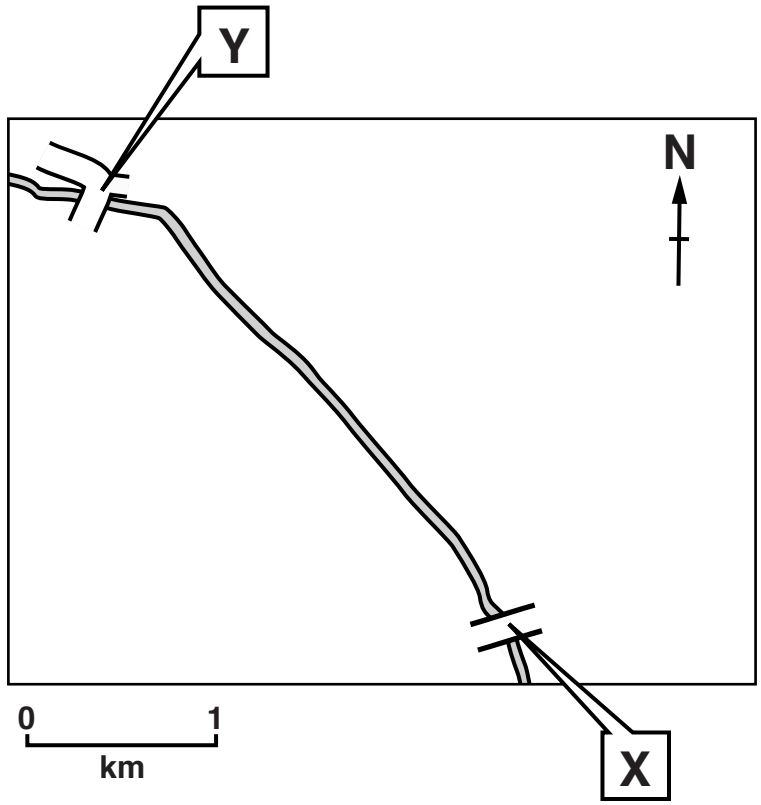
(c) Here are the lengths, in feet, of all the narrowboats at the boat hire centre.

45 46 61 53 61 68 70

Calculate the mean length of these narrowboats. Give your answer correct to 1 decimal place.

(c) _____ feet [4]

(d) This map shows part of the Lee valley.



One day, Colin and Jean travelled along the canal from the bridge (X) to the bridge (Y).

(i) In what approximate compass direction did they travel?

(d)(i) _____ [1]

(ii) Estimate how many kilometres they travelled.

(ii) _____ km [1]

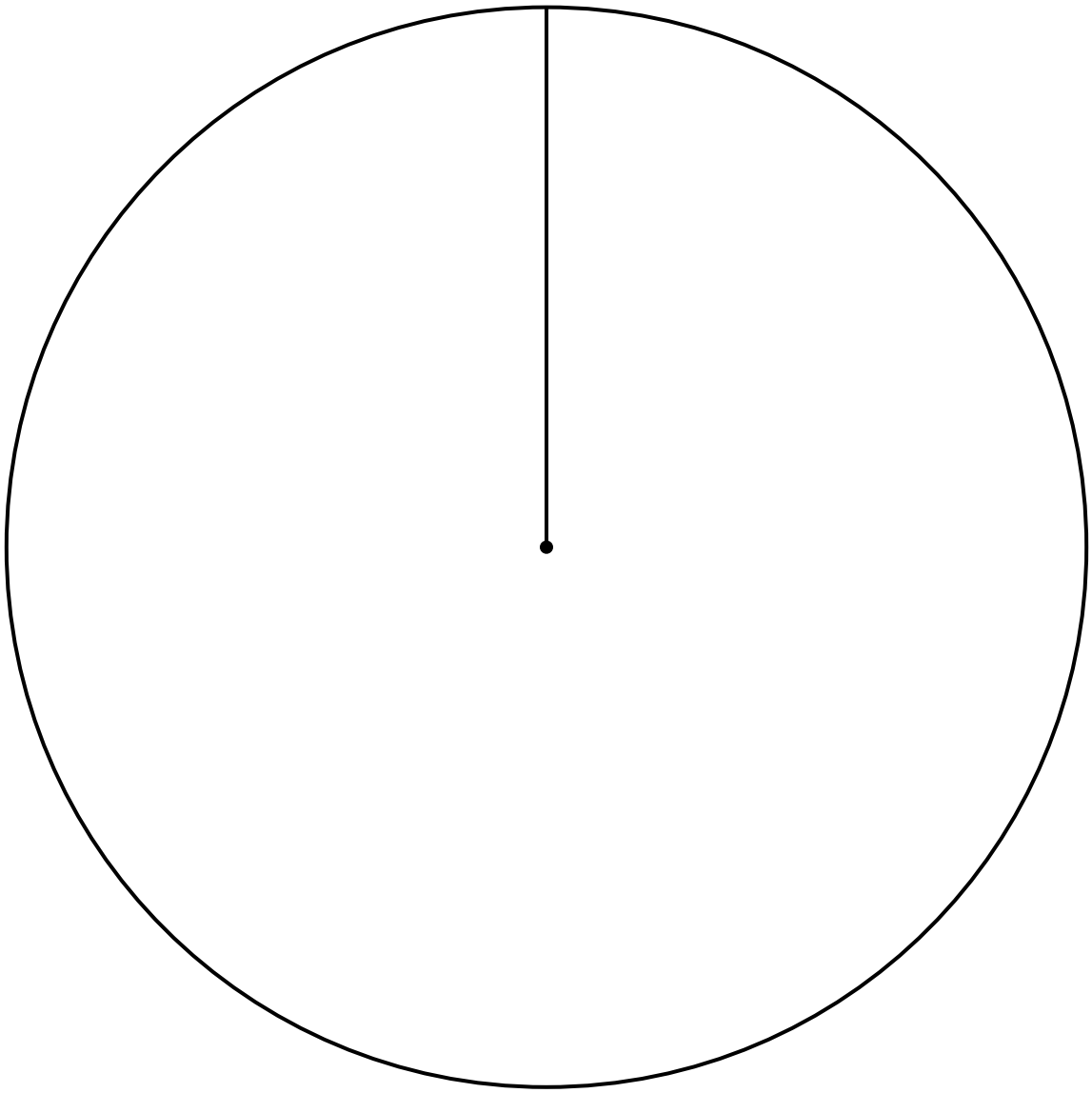
5 Vivek interviewed 60 people about where they last went on holiday.
This table summarises his results.

Country	Frequency
UK	25
France	13
Spain	6
USA	5
Other	11

(a) Altogether, how many of these people went to France or Spain?

(a) _____ **[1]**

(b) Use the circle below to construct a pie chart to represent Vivek's results.



[4]

6 **Ruth stays in a hotel.**
She has a £28 voucher for her evening meal.
If the meal costs more than £28, she has to pay the extra.

Here is the menu.

STARTERS	MAIN COURSES	DESSERTS
Soup of the day £4.95	Rump steak £19.50	Mango pavlova £6.25
Melon and ham £5.70	Lemon chicken £15.65	Lemon mousse £5.30
Chicken liver paté £4.65	Mushroom risotto £13.95	Sticky toffee pudding £5.95
Goat's cheese tart £5.40	Poached salmon £17.90	Cheese and biscuits £5.70

Ruth chooses this meal.

- **Melon and ham**
- **Poached salmon**
- **Lemon mousse**

With this choice Ruth has to pay less than £1 extra, after using her voucher.

(a) Calculate the extra amount she has to pay.
Show how you decide.

(a) _____ p [4]

(b) Change ONE item in the meal which Ruth chose so that it would cost less than £28 for a three-course meal.
Show how you decide.

Replace _____

with _____

because _____ **[2]**

7 Calculate.

(a) the cube root of 2197

(a) _____ **[1]**

(b) $\dfrac{151.2}{16.8 + 5.6}$

(b) _____ **[1]**

8 These are the ingredients to make Raspberry Cream for four people.

SERVES 4 PEOPLE	
300 g	raspberries
200 ml	yoghurt
200 ml	whipping cream
50 g	demerara sugar

Sumita wants to make Raspberry Cream for a party of 14 people.
She picks 1.1 kg of raspberries from her garden.

Does Sumita have enough raspberries to make Raspberry Cream for 14 people?
Show how you decide. **[4]**

9 ***Use a ruler and a pair of compasses to answer this question.***
Leave all your construction lines.

ABCD is a quadrilateral.
Sides AB and BC have been drawn below.

(a) The other sides are AD and CD.
AD = 9.5 cm and CD = 4.8 cm.

Complete the construction of quadrilateral ABCD. **[2]**

(b) Construct the bisector of angle B of the quadrilateral. **[2]**

10 Janet is planning a conference.
The hotel charges £150 for the meeting room plus £70 for each person who attends.

(a) Write a formula for the total charge, £C, when n people attend a conference.

(a) C = _____ [2]

(b) Janet can afford a maximum total charge of £3300.

Write an equation and solve it to find the largest number of people that could attend.

(b) _____ [3]

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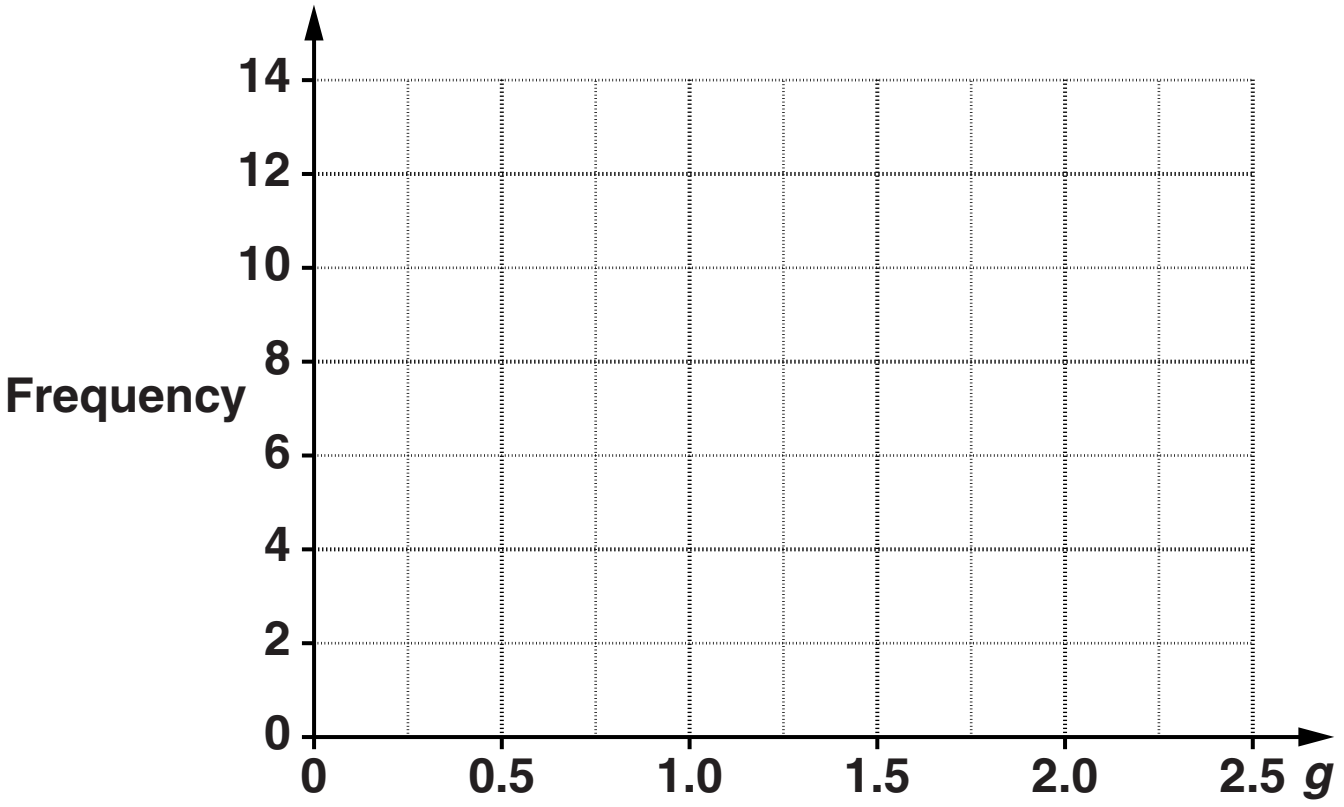
11 This table summarises the average number of goals scored by teams per game in the Football World Cup in 2010.

Average number of goals scored by a team per game (g)	Number of teams
$0 \leqslant g < 0.5$	5
$0.5 \leqslant g < 1.0$	7
$1.0 \leqslant g < 1.5$	13
$1.5 \leqslant g < 2.0$	5
$2.0 \leqslant g < 2.5$	2

(a) State the modal group for these data.

(a) _____ **[1]**

(b) Draw a frequency polygon to represent the data.



[3]

12 (a) The *n*th term of a sequence is $\frac{n(n-1)}{2}$.

(i) Work out the first term of this sequence.

(a)(i) _____ [1]

(ii) Work out the 10th term of this sequence.

(ii) _____ [1]

(b) Here are the first four terms of another sequence.

2 6 10 14

Write an expression for the *n*th term of this sequence.

(b) _____ [2]

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