AQA

Please write clearly in block capitals.

Centre number ☐☐☐☐☐ Candidate number ☐☐☐☐

Surname _____

Forename(s) _____

Candidate signature _____

GCSE MATHEMATICS

H

Higher Tier   Unit 1   Statistics and Number

Wednesday 2 November 2016   Morning   Time allowed: 1 hour

Materials
For this paper you must have:
● a calculator
● mathematical instruments.
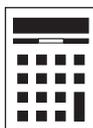
Instructions
● Use black ink or black ball-point pen. Draw diagrams in pencil.
● Answer **all** questions.
● You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
● Do all rough work in this book.

Information
● The marks for questions are shown in brackets.
● The maximum mark for this paper is 54.
● The quality of your written communication is specifically assessed in Questions 1 and 9. These questions are indicated with an asterisk (*).
● You may ask for more answer paper and graph paper. These must be tagged securely to this answer book.

Advice
● In all calculations, show clearly how you work out your answer.

Answer all questions in the spaces provided.

1 On Thursday, the number of cars using 13 car parks is recorded.
Here are the results.

40	51	72	47	60
55	61	75	63	69
52	64	56		

*1 (a) Show the data on an ordered stem-and-leaf diagram.
Remember to complete the key.

[4 marks]

Key: _____ | _____ represents _____ cars

1 (b) On Friday, the median number of cars using the car parks is 15% lower than Thursday.

Work out the median for Friday.

[3 marks]

_____

_____

_____

_____

_____

_____

Answer _____

**Turn over for the next question**

2 The bar chart shows the cost of flights to four cities.

Flight costs
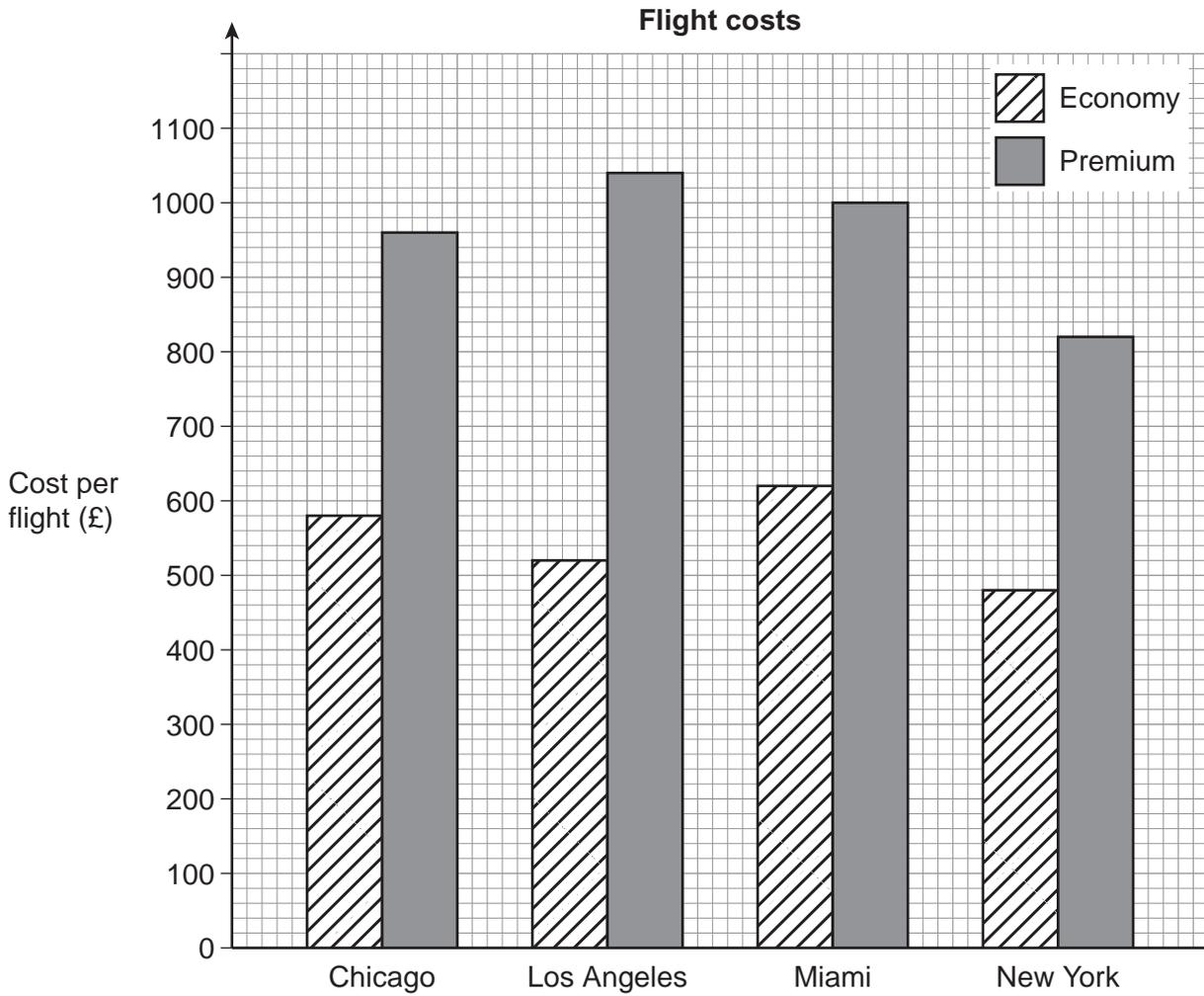
75 people fly to Miami.
Some fly Economy and the others fly Premium.

The total cost of the **Economy** flights is £37 820

Use the bar chart to work out the total cost of the **Premium** flights.

[4 marks]

_____

_____

_____

_____

_____

Answer £ _____

3 (a) A fair spinner has 10 equal sections.
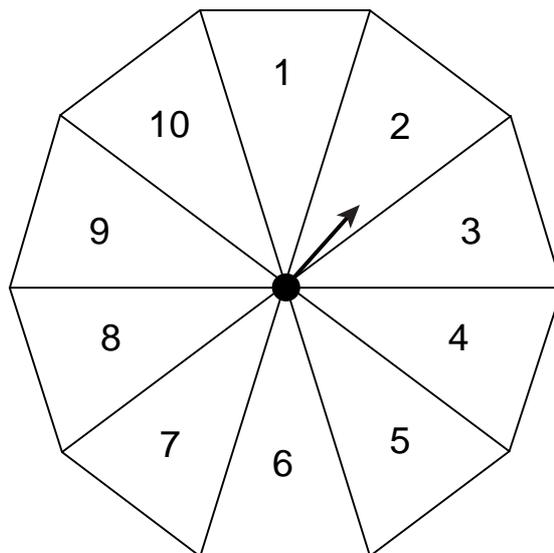
Here are the results of eight spins.

4   7   5   6   4   9   4   2

Circle the probability of the arrow landing on 4 on the next spin.

[1 mark]

$\frac{1}{10}$ $\frac{3}{8}$ $\frac{4}{10}$ $\frac{4}{9}$

3 (b) Describe how to test if a six-sided dice is fair.

[2 marks]

_____

_____

_____

_____

_____

7

Turn over ▶
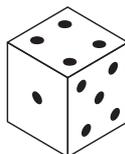
4 In a survey, 160 people chose A, B or C.

30 women and 26 men chose B.

Women chose A : B : C in the ratio 1 : 2 : 3

2 **more** people chose A than chose C.

Complete the table.

[5 marks]

	A	**B**	**C**	**Total**
Women		30		
Men		26		
Total				160

5   Each day Chen buys pasta or a sandwich.

Pasta	£3.20
Sandwich	£2.75

For 45 days, the relative frequency of Chen buying a sandwich was $\frac{1}{5}$

Altogether, how much did he pay?

[4 marks]

_____

_____

_____

_____

_____

_____

_____

Answer £ _____

Turn over for the next question

9

Turn over ▶

6   The table shows information about the waiting times of 400 patients.

Time, t (minutes)	Frequency	Cumulative frequency
$10 < t \leqslant 30$	50	50
$30 < t \leqslant 50$	40	
$50 < t \leqslant 65$	110	
$65 < t \leqslant 80$	155	
$80 < t \leqslant 100$	45	

6 (a)   Complete the cumulative frequency column.

[1 mark]

6 (b)   Show the information on a cumulative frequency graph.

[3 marks]

Waiting times

Time, t (minutes)
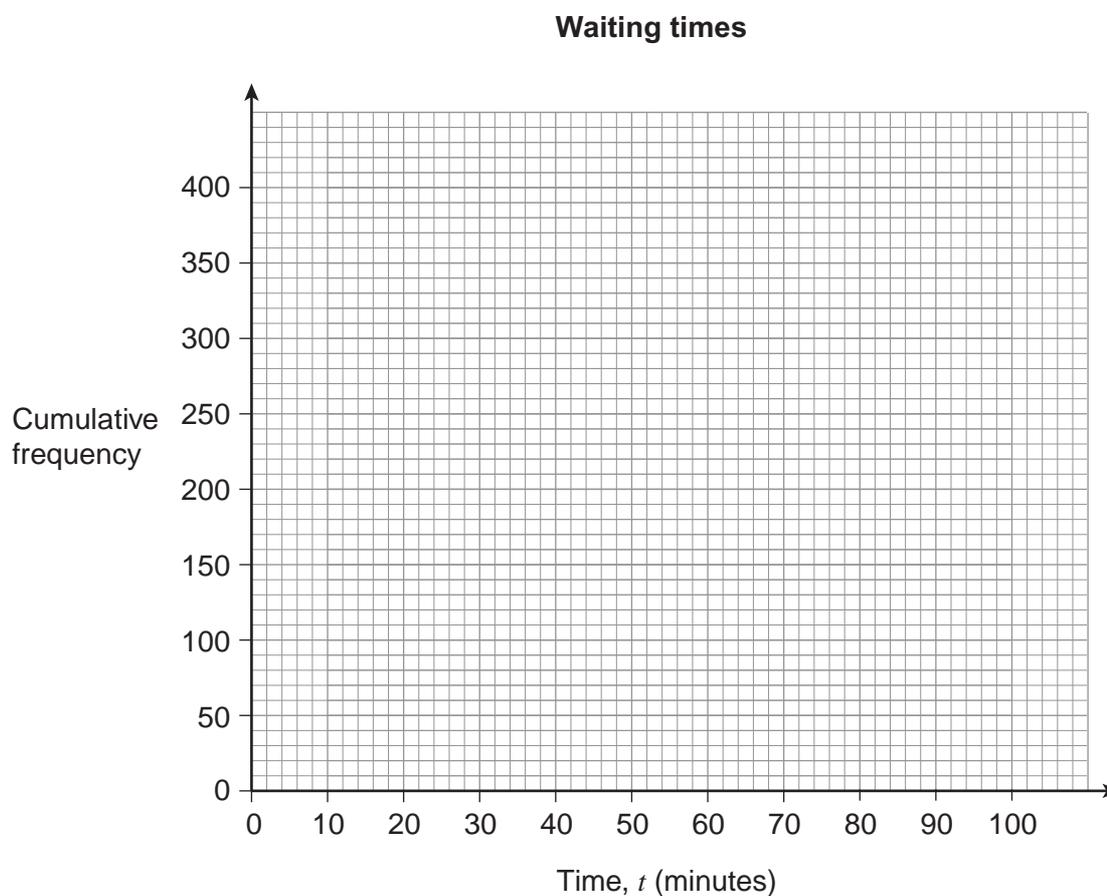
7 In a competition, Amy and Beth each get five marks.

For each person,

the marks are put in order

the score is the mean of the middle three marks.

Amy

Mean of all **five** marks	7.6
Lowest mark	6.5
Highest mark	9.9

Beth

Score	7.4

Who has the higher score?
You **must** show your working.

[4 marks]

_____

_____

_____

_____

_____

_____

_____

Answer _____

8

Turn over ▶

8 Students from two schools took part in a maths challenge.
None of the students scored 60 or 72

8 (a) 164 students from school A took part.
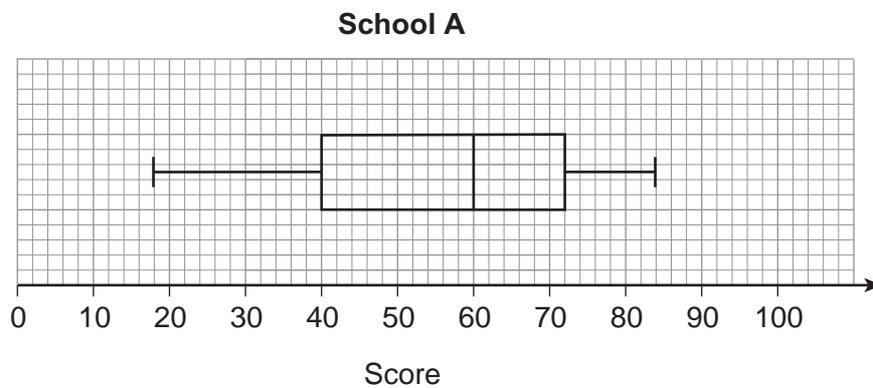
School A

Score

Work out the number of students from school A who scored **more than** 72

[2 marks]

_____

_____

Answer _____

8 (b) This box plot represents the scores of the students from school B.
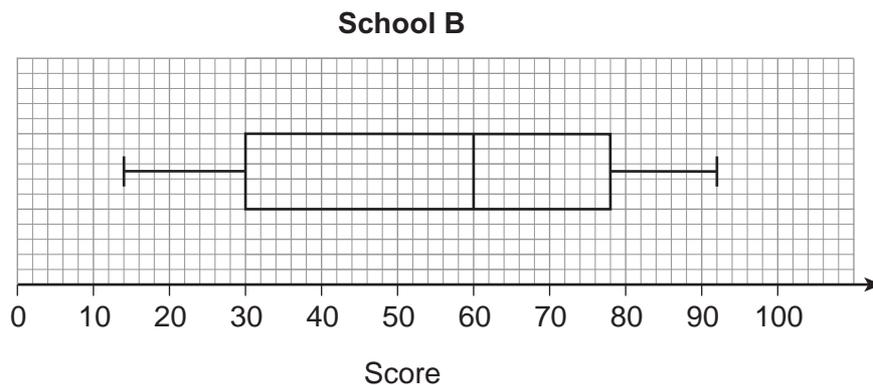
School B

Score

190 students in total from **both** schools scored **more than** 60

Use both box plots to work out the number of students from school B who took part.

[2 marks]

_____

_____

_____

Answer _____

Turn over for the next question

4

*9 I decrease a number by 26%

The answer is 9×10^{-7}

What number did I start with?
Give your answer in standard form.

[3 marks]

_____

_____

_____

_____

_____

_____

Answer _____

10 The table shows information about 1500 people watching a sport.

Gender

		Male	Female
Age group	**Adult**	340	260
	Child	502	398

Kelly wants to survey 75 of these people, stratified by age group and gender.

How many **more** children than adults should she survey?

[3 marks]

_____

_____

_____

_____

_____

Answer _____

13

11 The histogram shows information about the hourly wages of people in a company.

Wages
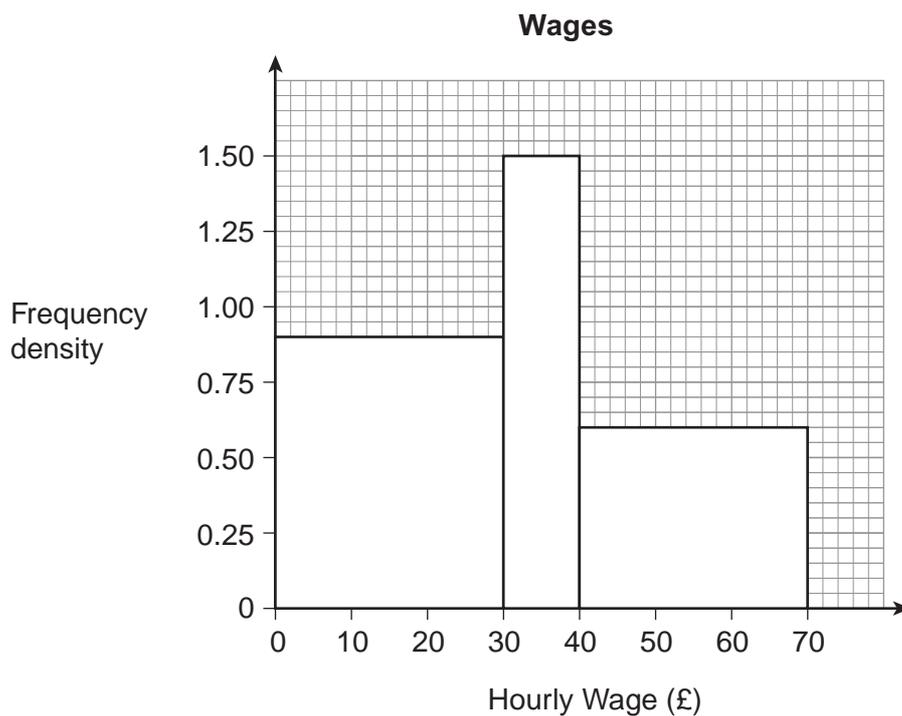
11 (a) Show that there are 60 people in the company.

[2 marks]

_____

_____

_____

_____

11 (b)   Estimate the mean hourly wage.

[4 marks]

_____

_____

_____

_____

_____

_____

Answer £ _____

11 (c)   Sarah has the 12th highest hourly wage in the company.

Estimate her hourly wage.
You **must** show your working.

[2 marks]

_____

_____

_____

_____

Answer £ _____

Turn over for the next question

8

Turn over ▶

12   The table shows information about the ages, in years, of 100 people.

Age (years)	Frequency
Under 18	12
18 to 65	78
Over 65	10
	Total = 100

Two of the people are chosen at random.

12 (a)   Work out the probability that both are over 65

[2 marks]

_____

_____

_____

Answer _____

12 (b)   Work out the probability that one is under 18 and the other is 18 or over.

[3 marks]

_____

_____

_____

_____

_____

Answer _____

END OF QUESTIONS

There are no questions printed on this page

DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED

There are no questions printed on this page

DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED

There are no questions printed on this page

DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED