

Please write clearly in block capitals.

Centre number

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Candidate number

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Surname

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Forename(s)

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Candidate signature

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# GCSE MATHEMATICS

# H

Higher Tier Unit 1 Statistics and Number

Wednesday 2 November 2016

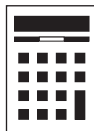
Morning

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]**

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Answer \_\_\_\_\_

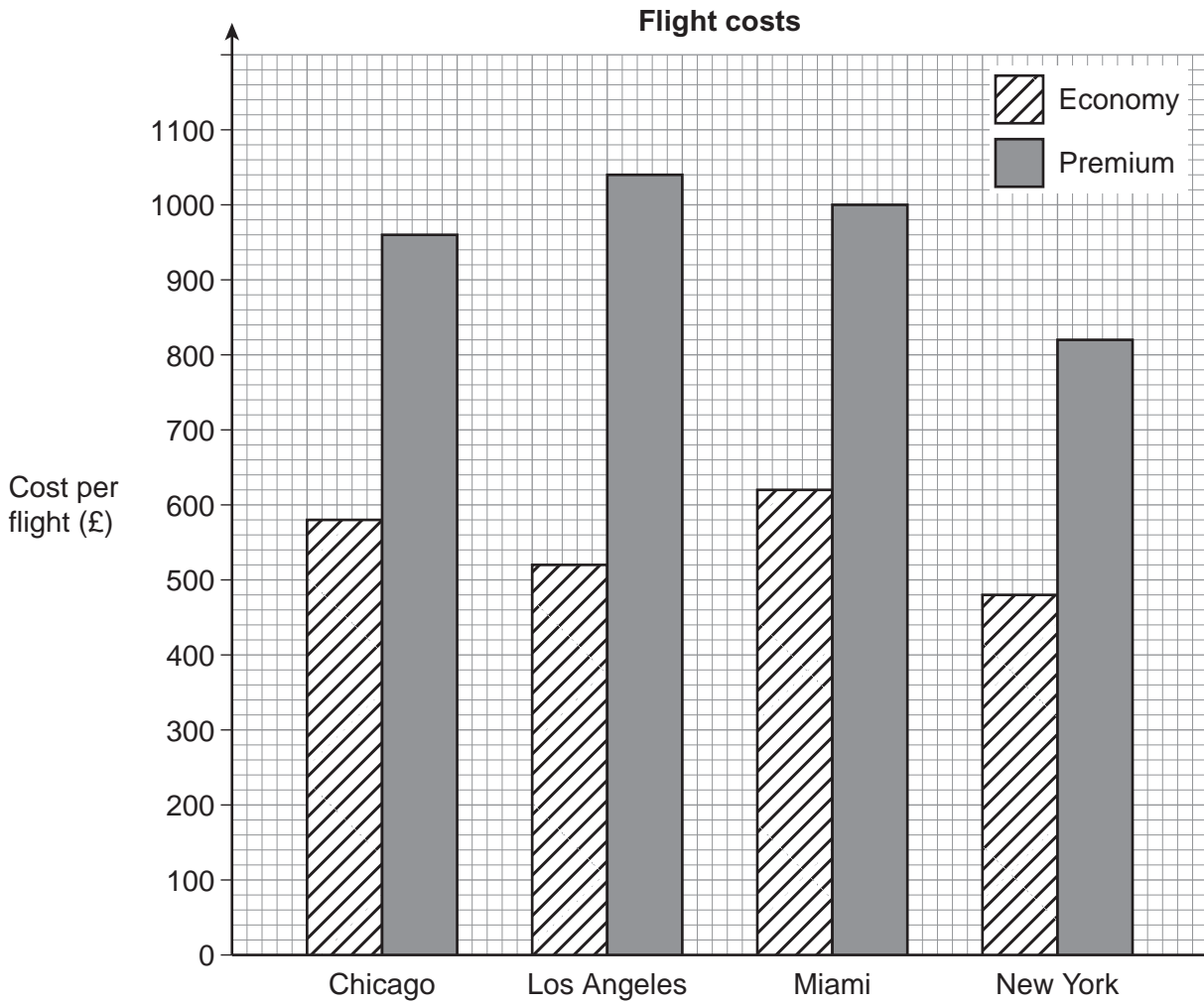
**Turn over for the next question**

7
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**Turn over ►**



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



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]

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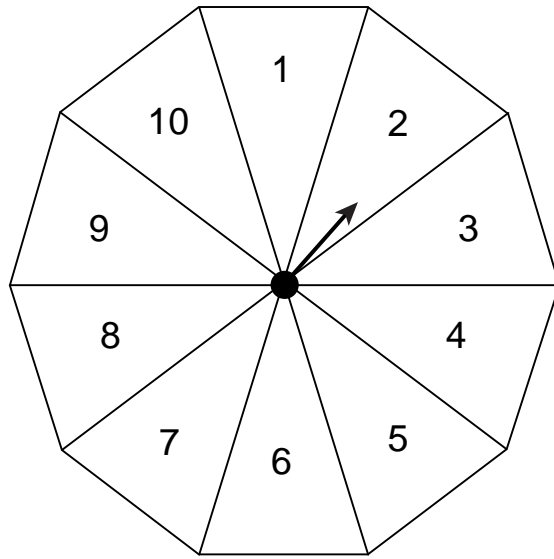


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Answer £ \_\_\_\_\_



- 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]

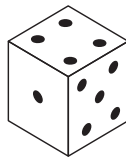
$$\frac{1}{10}$$

$$\frac{3}{8}$$

$$\frac{4}{10}$$

$$\frac{4}{9}$$

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



[2 marks]

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- 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]**

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Answer £ \_\_\_\_\_

**Turn over for the next question**



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

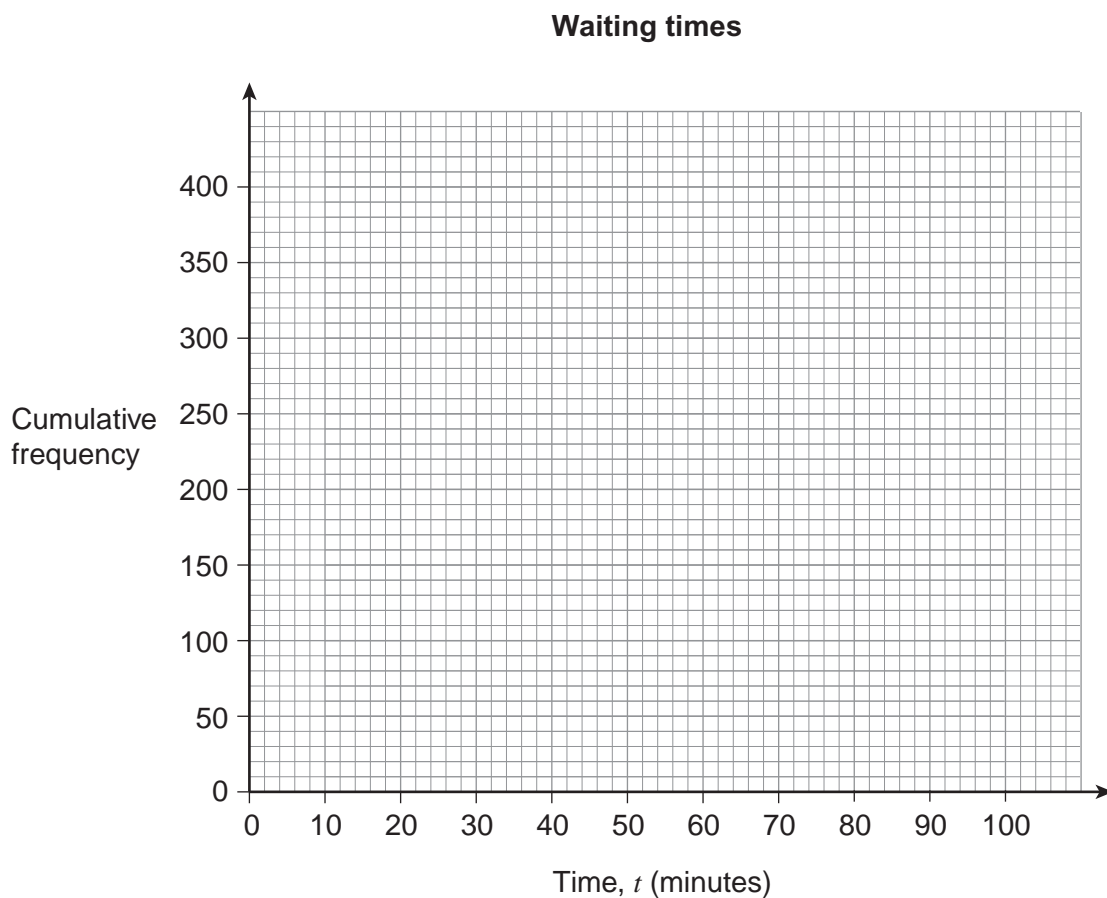
Time, $t$ (minutes)	Frequency	Cumulative frequency
$10 < t \leq 30$	50	50
$30 < t \leq 50$	40	
$50 < t \leq 65$	110	
$65 < t \leq 80$	155	
$80 < t \leq 100$	45	

- 6 (a) Complete the cumulative frequency column.

[1 mark]

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

[3 marks]





- 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 <b>five</b> marks	7.6
Lowest mark	6.5
Highest mark	9.9

**Beth**

Score	7.4
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Who has the higher score?  
You **must** show your working.

**[4 marks]**

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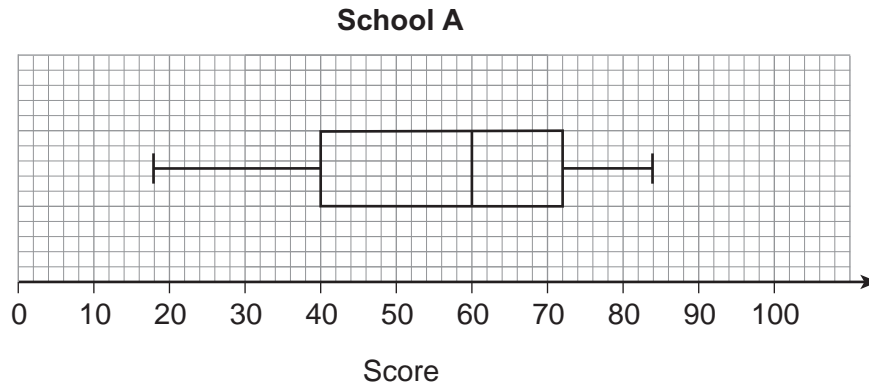
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Answer \_\_\_\_\_



**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.



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

**[2 marks]**

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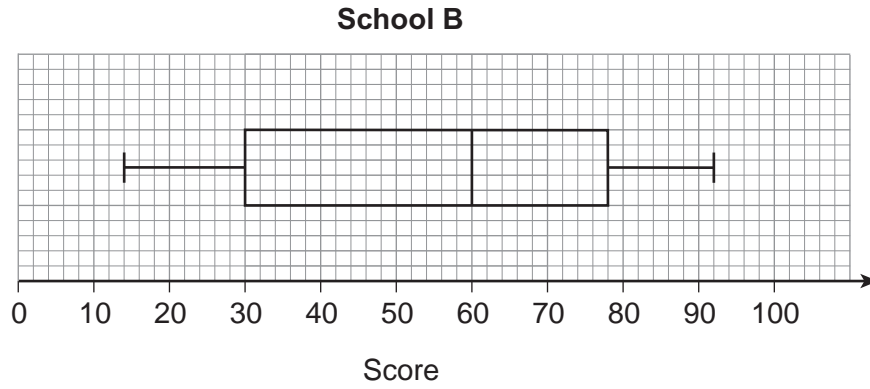


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Answer \_\_\_\_\_



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



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]

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Answer \_\_\_\_\_

Turn over for the next question

4
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Turn over ►



**\*9**

I decrease a number by 26%

The answer is  $9 \times 10^{-7}$ 

What number did I start with?

Give your answer in standard form.

**[3 marks]**

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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]

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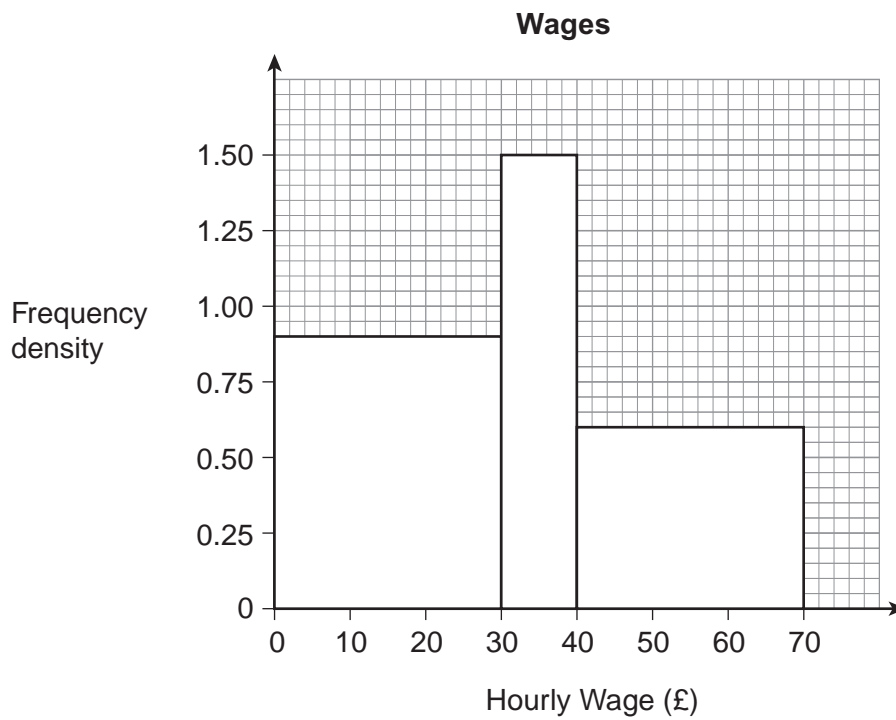
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Answer \_\_\_\_\_



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



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

[2 marks]

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11 (b) Estimate the mean hourly wage.

[4 marks]

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Answer £ \_\_\_\_\_

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

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

[2 marks]

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Answer £ \_\_\_\_\_

Turn over for the next question

8
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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]**

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Answer \_\_\_\_\_





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

**[3 marks]**

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Answer \_\_\_\_\_

**END OF QUESTIONS**

5



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