

## Cumulative Frequency

Please write clearly in block capitals

Forename:

Surname:

### Materials

For this paper you must have:

- mathematical instruments



You **can** use a calculator.

### Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- 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. Cross through any work you do not want to be marked.

### Information

- The marks for questions are shown in brackets.
- You may ask for graph paper, tracing paper and more answer paper. These must be tagged securely to this answer book.

### Advice

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

- 1** Pete measured how late his school bus was over the course of 6 months.  
The results are summarised in the table below.

- 1(a)** Use the information to complete the table below.

[2 marks]

Delay (mins)	Frequency	Cumulative Frequency
$0 < t \leq 2$	6	
$2 < t \leq 4$	13	
$4 < t \leq 6$	34	
$6 < t \leq 8$	19	
$8 < t \leq 10$	13	
$10 < t \leq 12$	5	

- 1(b)** Pete wants to plot the information shown in the table to make a cumulative frequency diagram.

Starting with the smallest  $x$  value, give the first two coordinates Pete will plot.

[2 marks]

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Answer \_\_\_\_\_ and \_\_\_\_\_

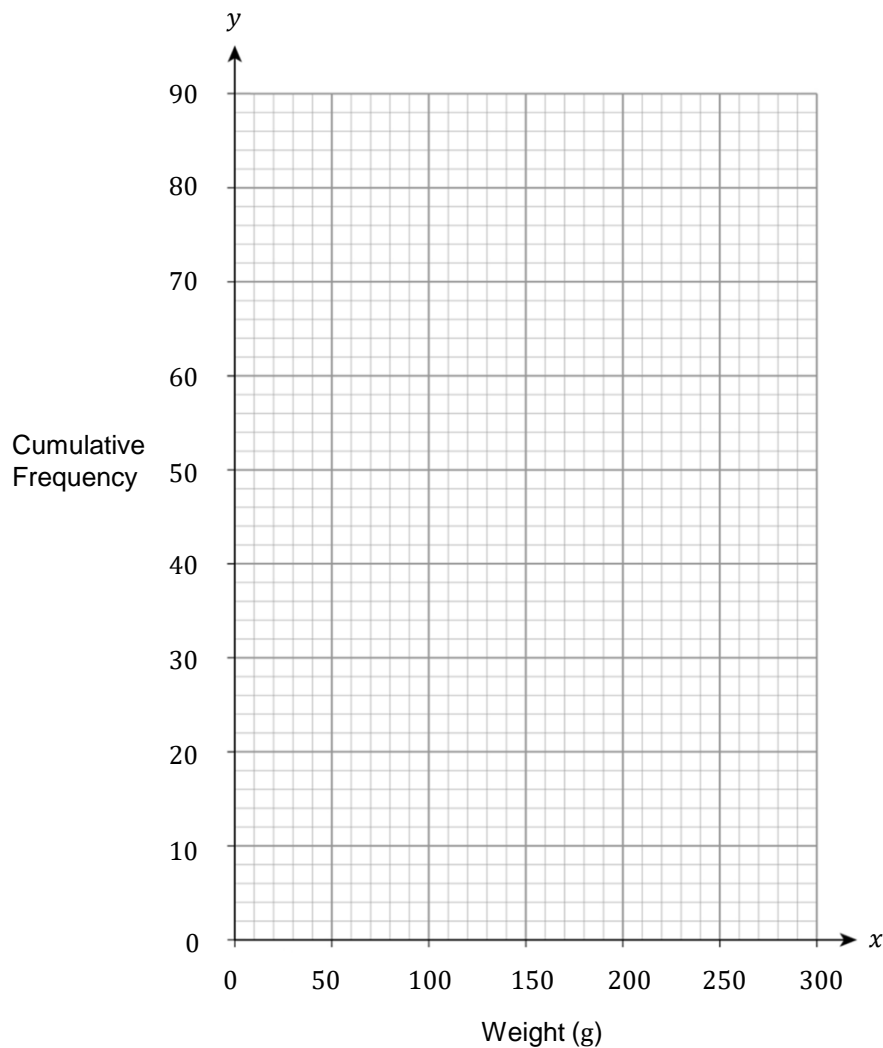
Turn over for next question

- 2 Oliver picks 90 apples from the apple trees in his garden and weighs them individually. The weights have been summarised in the cumulative frequency table below.

Weight (g)	Cumulative Frequency
$0 < g \leq 50$	5
$0 < g \leq 100$	16
$0 < g \leq 150$	43
$0 < g \leq 200$	67
$0 < g \leq 250$	80
$0 < g \leq 300$	90

Use this information to plot a cumulative frequency diagram on the axes below.

[3 marks]

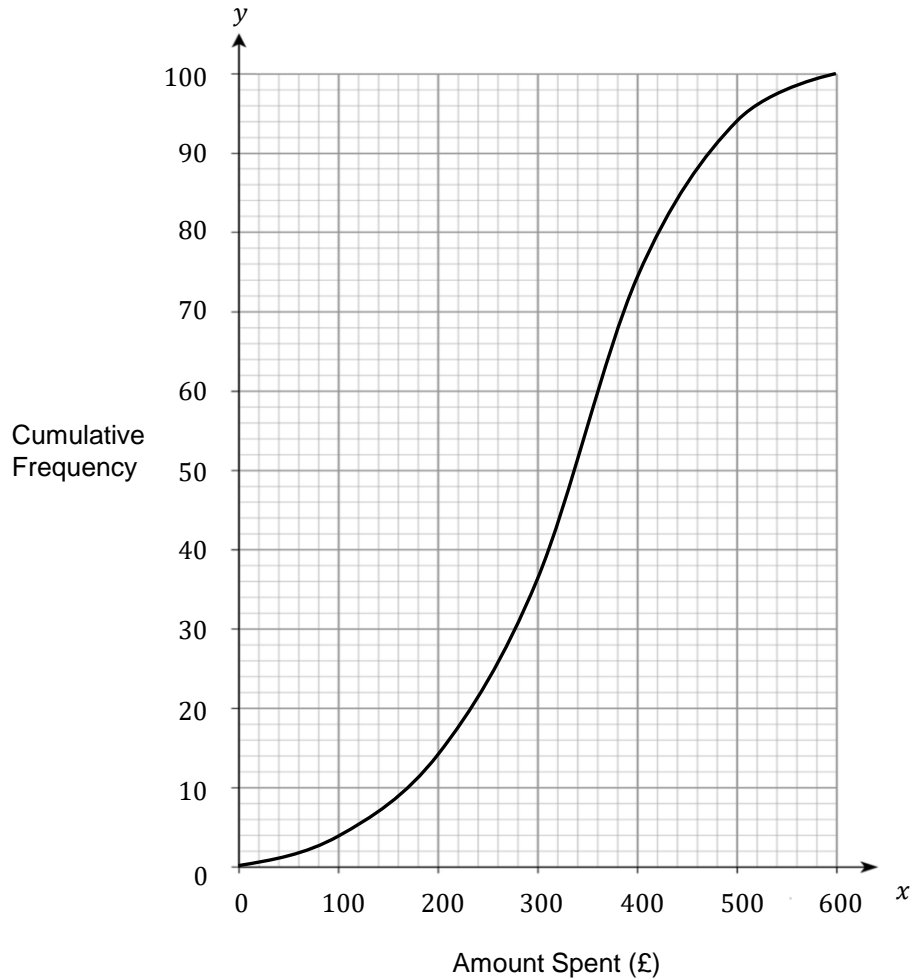


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- 3** Connor does a survey on how much money 100 people spend over the Christmas period.

The results have been plotted on a cumulative frequency diagram below.



- 3(a)** Use the cumulative frequency diagram to find the median amount spent.

[1 mark]

Answer \_\_\_\_\_

- 3(b)** Use the cumulative frequency diagram above to find the lower quartile.

[1 mark]

Answer \_\_\_\_\_

**Question continues on next page**

**3(c)** Use the cumulative frequency diagram to find the upper quartile.

**[1 mark]**

Answer \_\_\_\_\_

**3(d)** Use the cumulative frequency diagram to find the inter-quartile range.

**[1 mark]**

Answer \_\_\_\_\_

**3(e)** Use the cumulative frequency diagram to estimate the number of people who spent over £500 during the Christmas period.

**[2 marks]**

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Answer \_\_\_\_\_

**Turn over for next question**

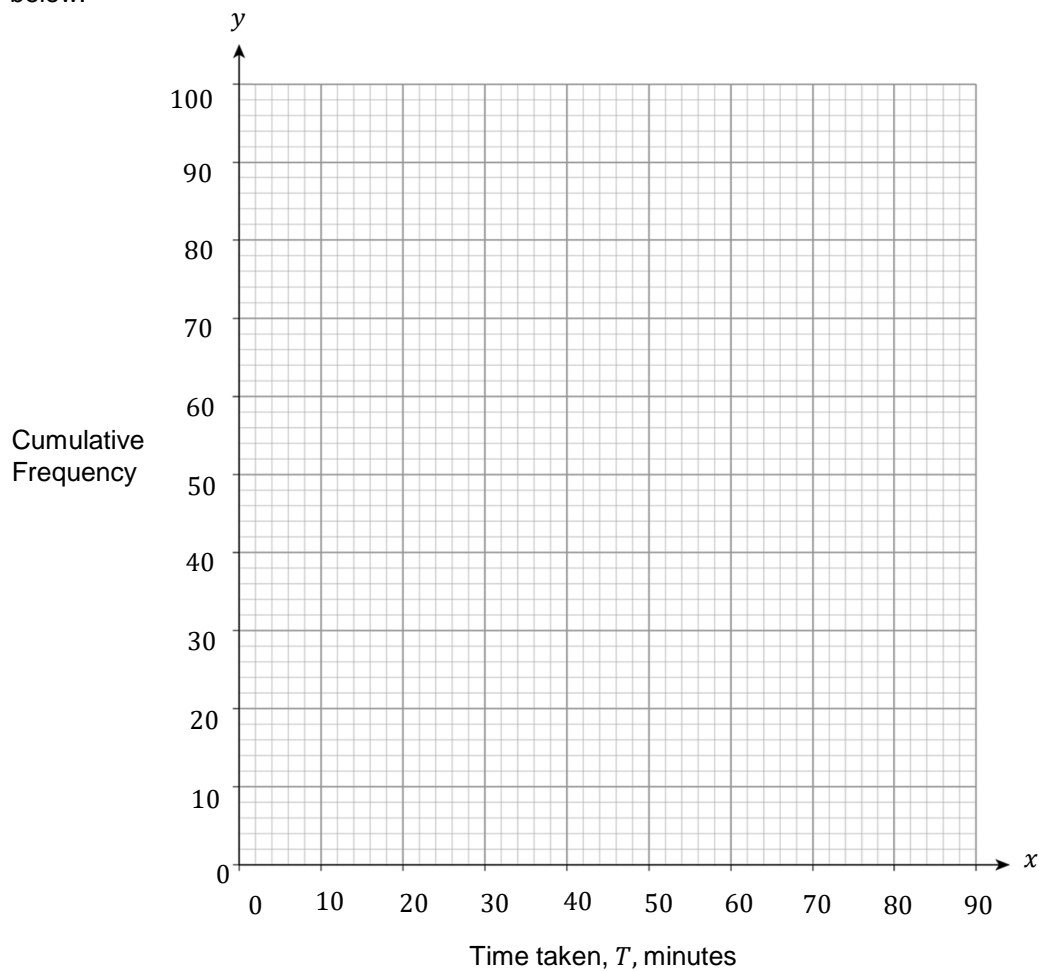
- 4 Debbie collects data on the time it takes people in her year group to complete a cross-country race.

The completion times have been summarised in the grouped frequency table below.

Time taken (mins)	Frequency	
$0 < t \leq 20$	2	
$20 < t \leq 30$	12	
$30 < t \leq 40$	23	
$40 < t \leq 50$	30	
$50 < t \leq 60$	14	
$60 < t \leq 70$	5	
$70 < t \leq 90$	4	

- 4(a) Use the information in the table to plot a cumulative frequency diagram on the axes below.

[3 marks]



Question continues on next page

Turn over ►

**4(b)** Using your cumulative frequency diagram, calculate the Inter-quartile range

**[2 marks]**

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Answer \_\_\_\_\_

**4(c)** Using your cumulative frequency diagram, calculate an estimate for the number of people who completed the race in under 45 minutes.

**[2 marks]**

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Answer \_\_\_\_\_



### GCSE Maths Revision Cards

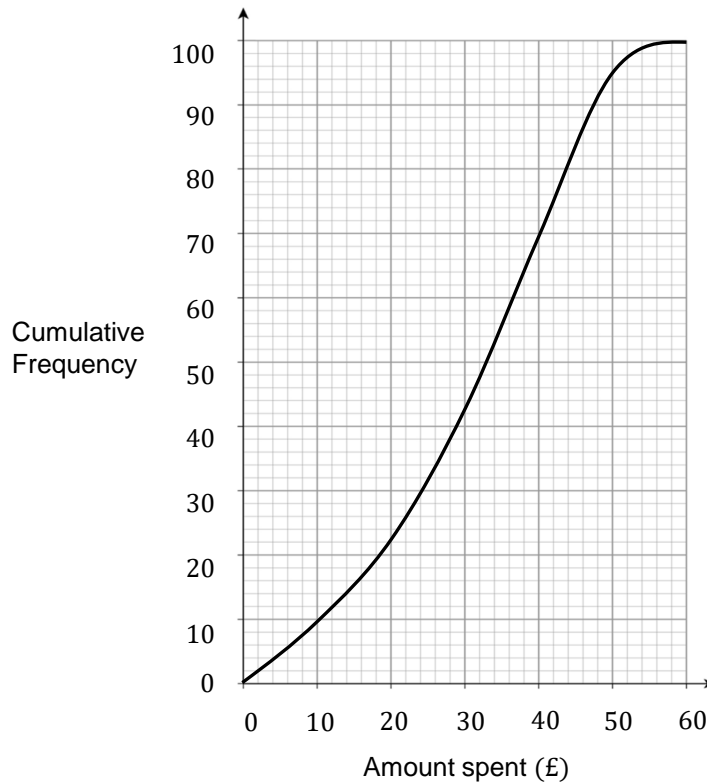
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Turn over ►

- 5** Eve collects information on the household spending per day for 100 families.  
The information has been summarised in the cumulative frequency diagram below.



- 5(a)** How many families spend greater than £25, but lower than £45, per day?

**[2 marks]**

Answer \_\_\_\_\_

- 5(b)** Her friend Frances collected her own data.  
The median for her data is £27 and the inter-quartile range is £30.  
Compare Eve and Frances' spending data.

**[2 marks]**

Answer \_\_\_\_\_

**Turn over for next question**

Turn over ►



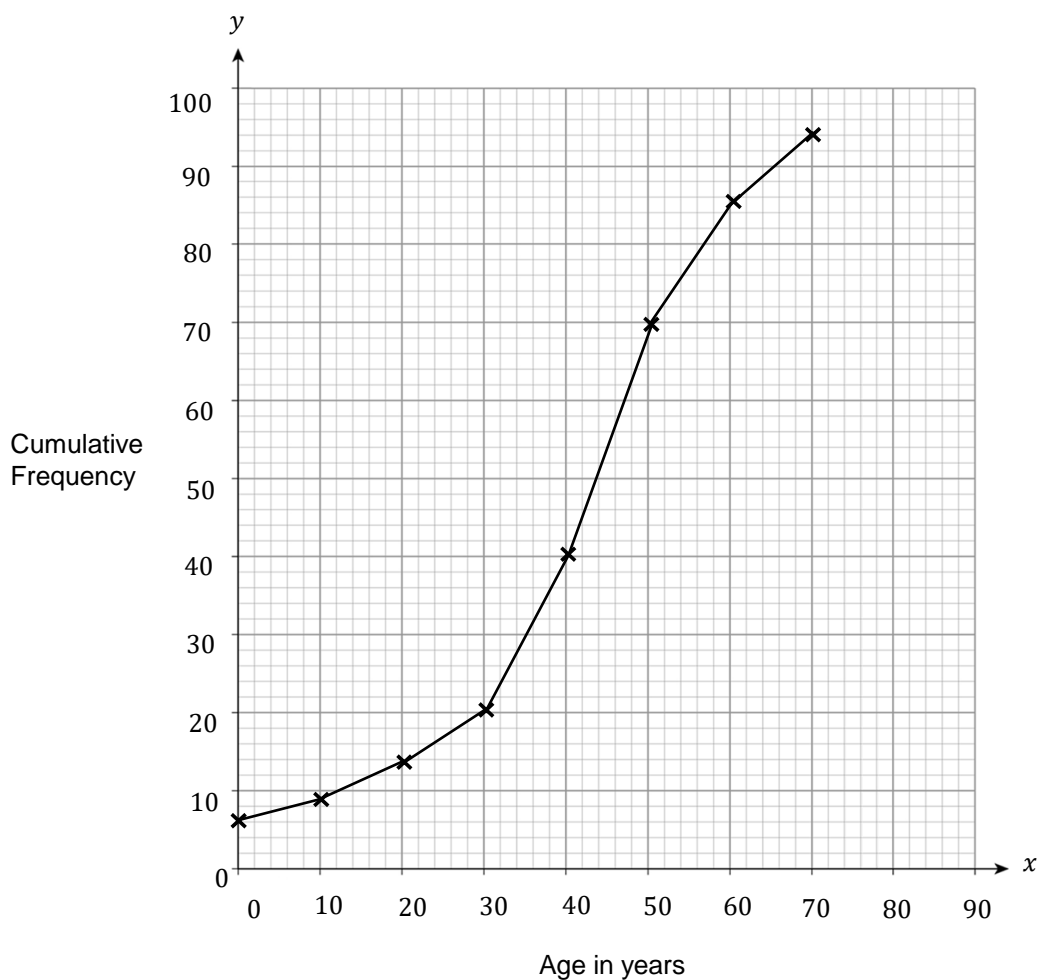
6

Graham collects data on the ages of people in his village.

He has summarised the information in a frequency table below.

He then plots his information on a cumulative frequency diagram as shown.

Age (years)	Frequency	Cumulative Frequency
$0 < a \leq 10$	2	2
$10 < a \leq 20$	4	6
$20 < a \leq 30$	8	14
$30 < a \leq 40$	18	32
$40 < a \leq 60$	48	80
$60 < a \leq 70$	8	88
$70 < a \leq 90$	12	100



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**6(a)** State three mistakes Graham has made when plotting his cumulative frequency diagram.

**[3 marks]**

1.

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2.

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3.

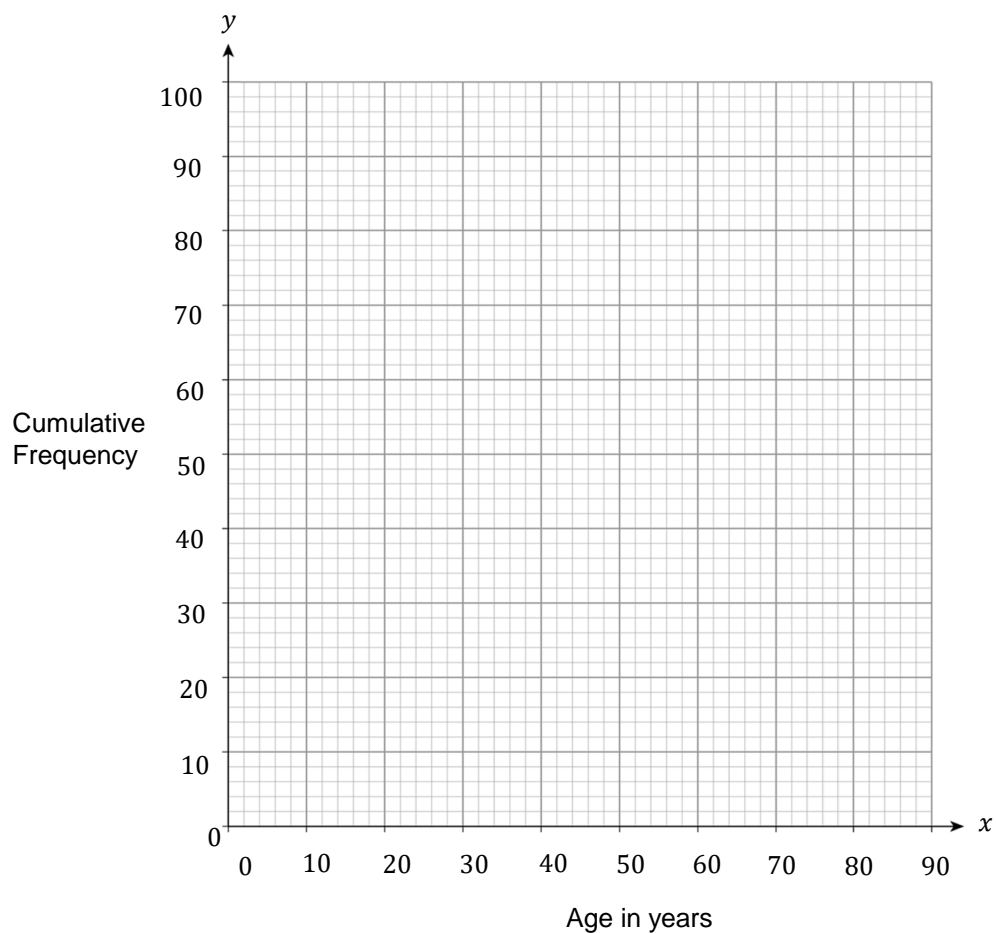
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**6(b)** Use the axes below to plot a corrected version of Graham's cumulative frequency diagram

**[2 marks]**



**End of Questions**