

Write your name here

Surname

Other names

In the style of:
Pearson Edexcel
GCSE

Centre Number

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Candidate Number

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Mathematics

Cumulative Frequency

Higher Tier

GCSE style questions arranged by topic

Paper Reference

1MA0/2H

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- **Calculators may be used.**
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**



Information

- The total mark for this paper is 80
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

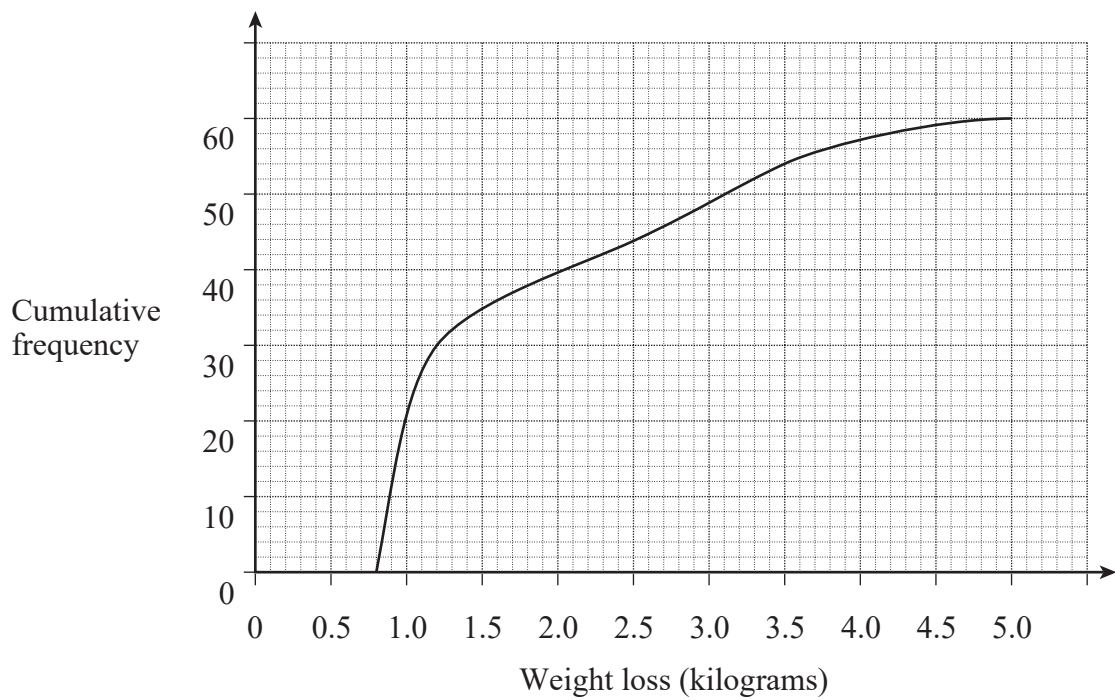
Turn over ►



1 Two groups of people are trying to lose weight.

(a) Group A join a gym.

The graph shows information about their weight loss after one month.



(i) How many people are in group A?

(1)

(ii) Does everyone in group A lose weight?
Write down how you decide.

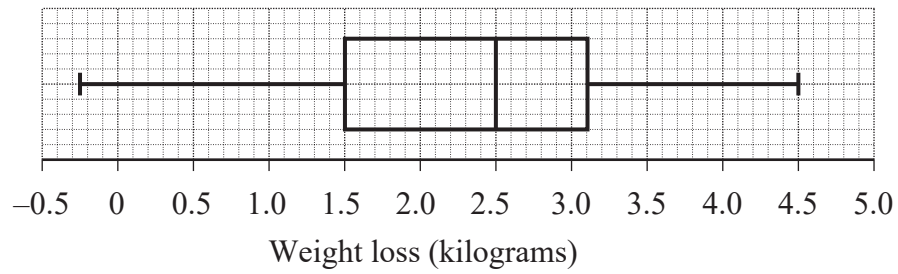
(1)



(b)

Group B follow a diet.

The box plot shows information about their weight loss after one month.



Does everyone in group B lose weight? Write down how you decide.

(1)

(c)

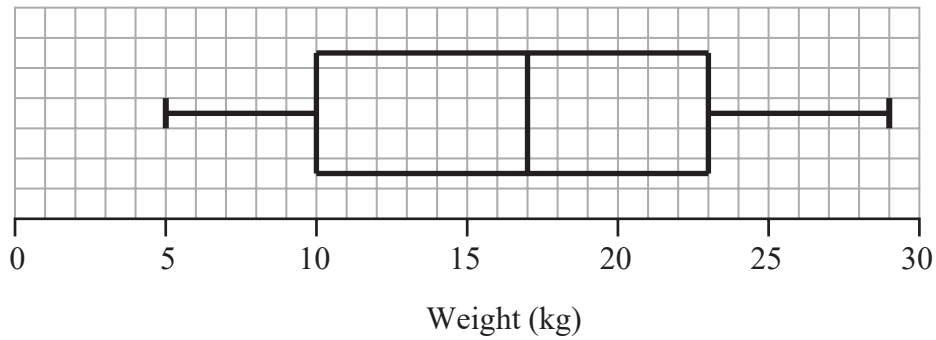
Compare the weight loss of group A with group B.

(5)

Total for Question 1 is 8 marks



2 The box plot gives information about the distribution of the weights of bags on a plane.



(a) Georgina says the lightest bag weighs 10 kg.

She is **wrong**.
Explain why.

.....
.....
(1)

(b) Write down the median weight.

..... kg
(1)

(c) Work out the interquartile range of the weights.

..... kg
(1)

There are 240 bags on the plane.

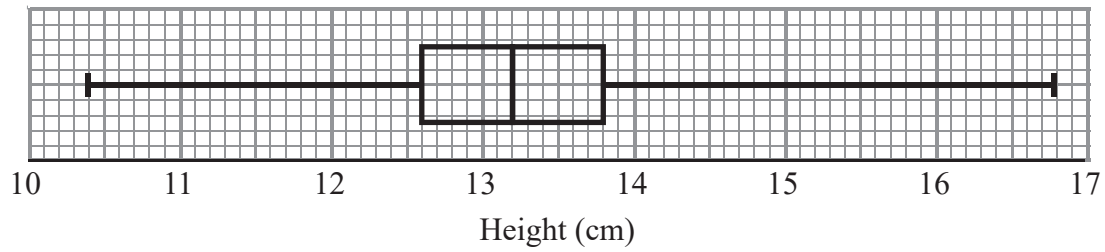
(d) Work out the number of bags with a weight of 23 kg or more.

.....
(2)

Total for Question 2 is 5 marks



- 3 David measured the height, in cm, of each tomato plant in his greenhouse.
He used the results to draw the box plot shown below.



- (a) Write down the median height.

.....cm
(1)

- (b) Work out the interquartile range.

.....cm
(2)

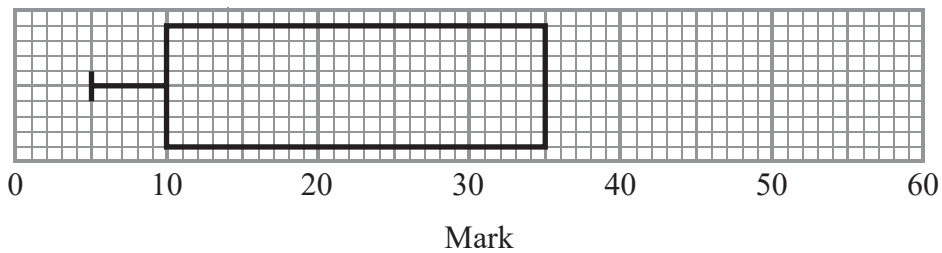
- (c) Explain why the interquartile range may be a better measure of spread than the range.

.....
.....
(1)

Total for Question 3 is 4 marks



4 The incomplete box plot and table show some information about some marks.



	Mark
Lowest mark	5
Lower quartile	
Median	30
Upper quartile	35
Highest mark	55

(a) Use the information in the table to complete the box plot.

(2)

(b) Use the information in the box plot to complete the table.

(1)

Total for Question 4 is 3 marks



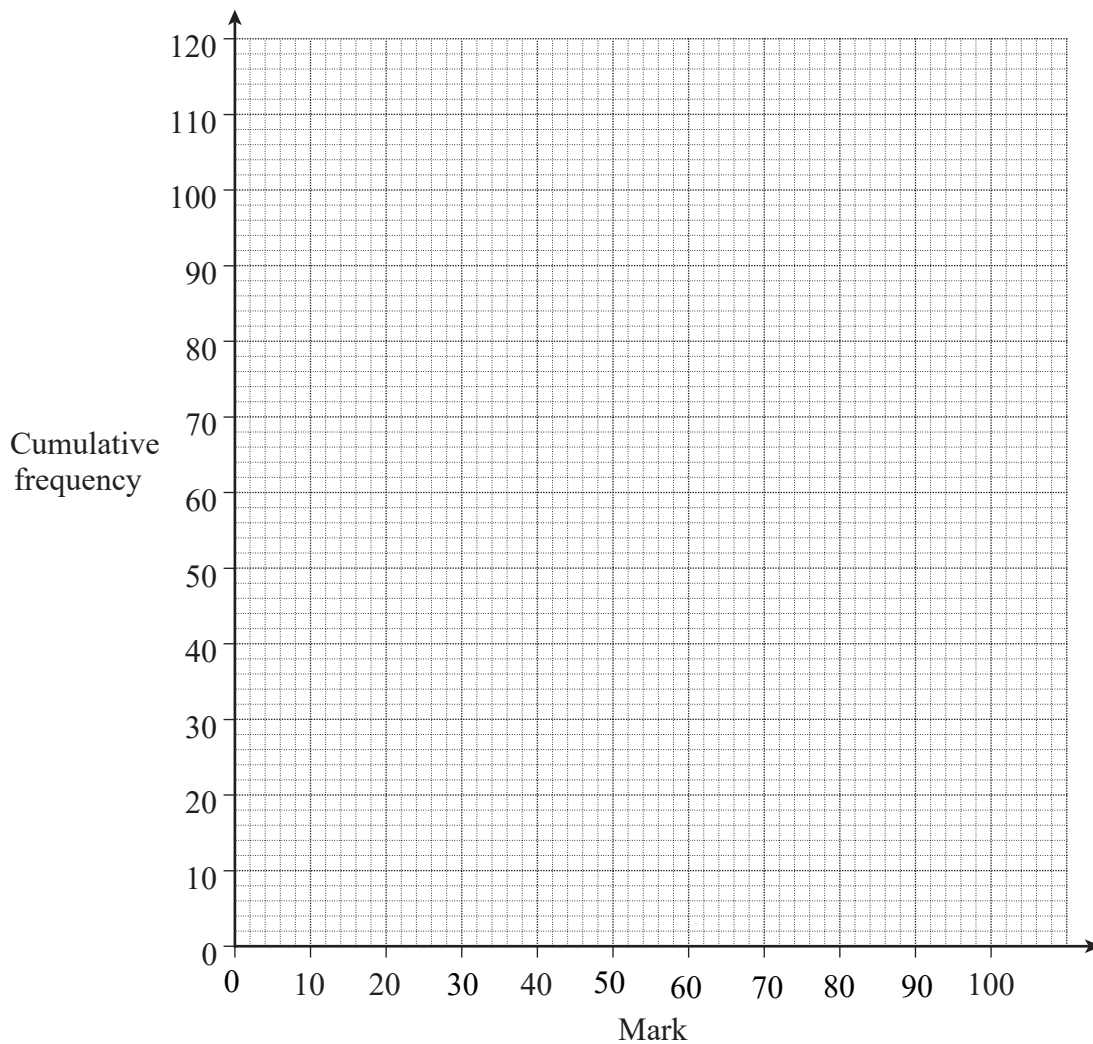
5

The table shows a summary of the marks scored by 120 people in a test.

Mark	Frequency
$0 < \text{mark} \leq 20$	8
$20 < \text{mark} \leq 40$	12
$40 < \text{mark} \leq 60$	46
$60 < \text{mark} \leq 80$	35
$80 < \text{mark} \leq 100$	19

(a) Three-quarters of the people pass the test.

Use a cumulative frequency graph to estimate the pass mark.



(5)



(b) Here is the table again.

Mark	Frequency
$0 < \text{mark} \leq 20$	8
$20 < \text{mark} \leq 40$	12
$40 < \text{mark} \leq 60$	46
$60 < \text{mark} \leq 80$	35
$80 < \text{mark} \leq 100$	19

Two of these 120 people are chosen at random.

(i) Work out the probability that both scored **over** 60.

.....
(2)

(ii)

Work out the probability that one scored **over** 80 and the other scored 80 or **under**.

.....
(3)

Total for Question 5 is 10 marks



6 Georgina did a survey about the amounts of money spent by 120 families during summer holidays.

The cumulative frequency table gives some information about the amounts of money spent by the 120 families.

Amount (£A) spent	Cumulative frequency
$0 \leq A < 100$	13
$0 \leq A < 150$	25
$0 \leq A < 200$	42
$0 \leq A < 250$	64
$0 \leq A < 300$	93
$0 \leq A < 350$	110
$0 \leq A < 400$	120

(a) On the grid, draw a cumulative frequency diagram. (2)

(b) Use your cumulative frequency diagram to estimate the median.

£

(2)

A survey of the amounts of money spent by 200 families during their Christmas holidays gave a median of £305

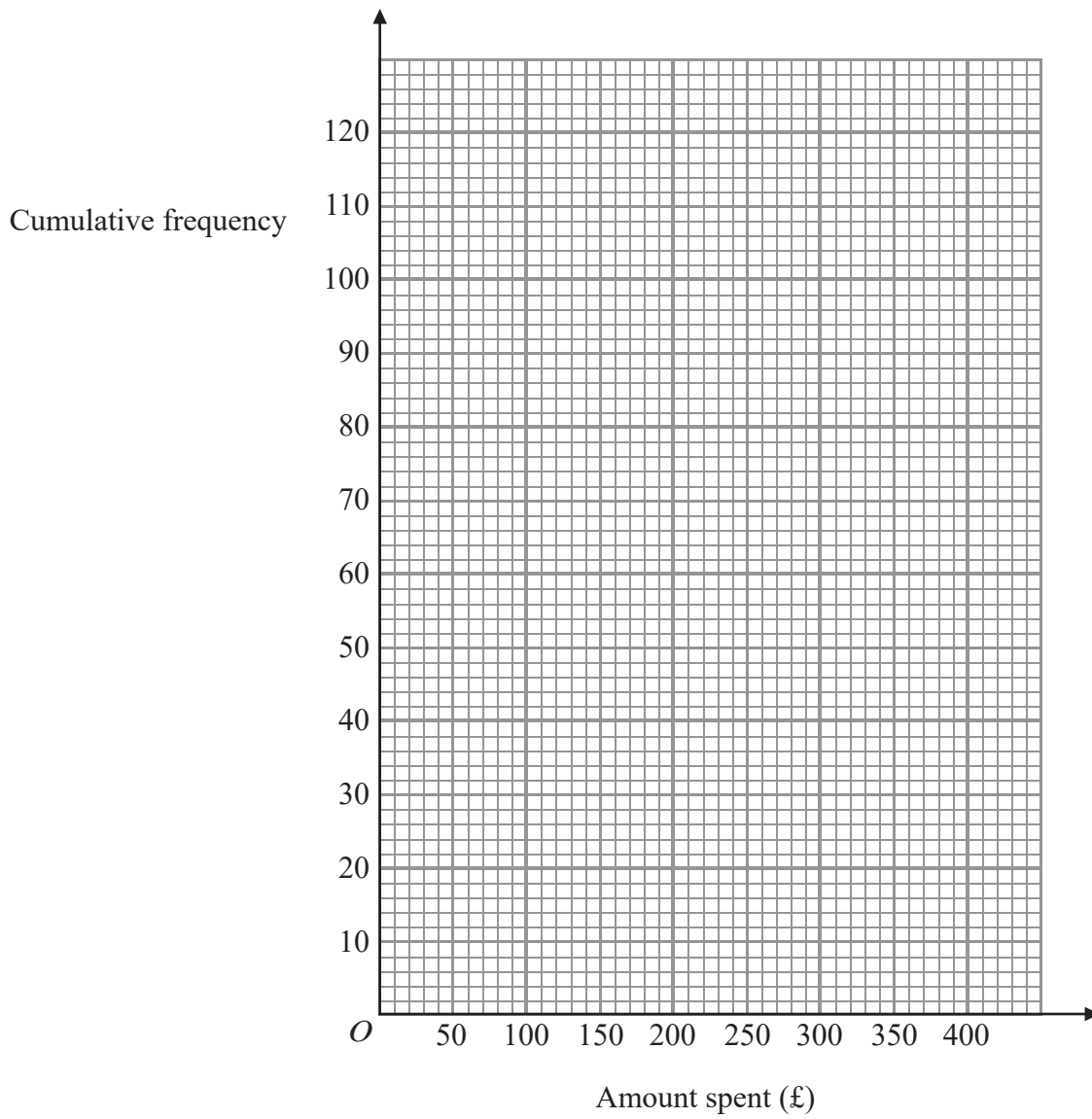
(c) Compare the amounts of money spent at Christmas with the amounts of money spent in summer.

.....

.....

(1)





Total for Question 6 is 5 marks



7 The table shows information about the number of felt tip pens in 100 childrens pencil cases.

Number of pens	Frequency
$0 < n \leq 20$	18
$20 < n \leq 40$	22
$40 < n \leq 60$	35
$60 < n \leq 80$	15
$80 < n \leq 100$	8
$100 < n \leq 120$	2

(a) Complete the cumulative frequency table for this information.

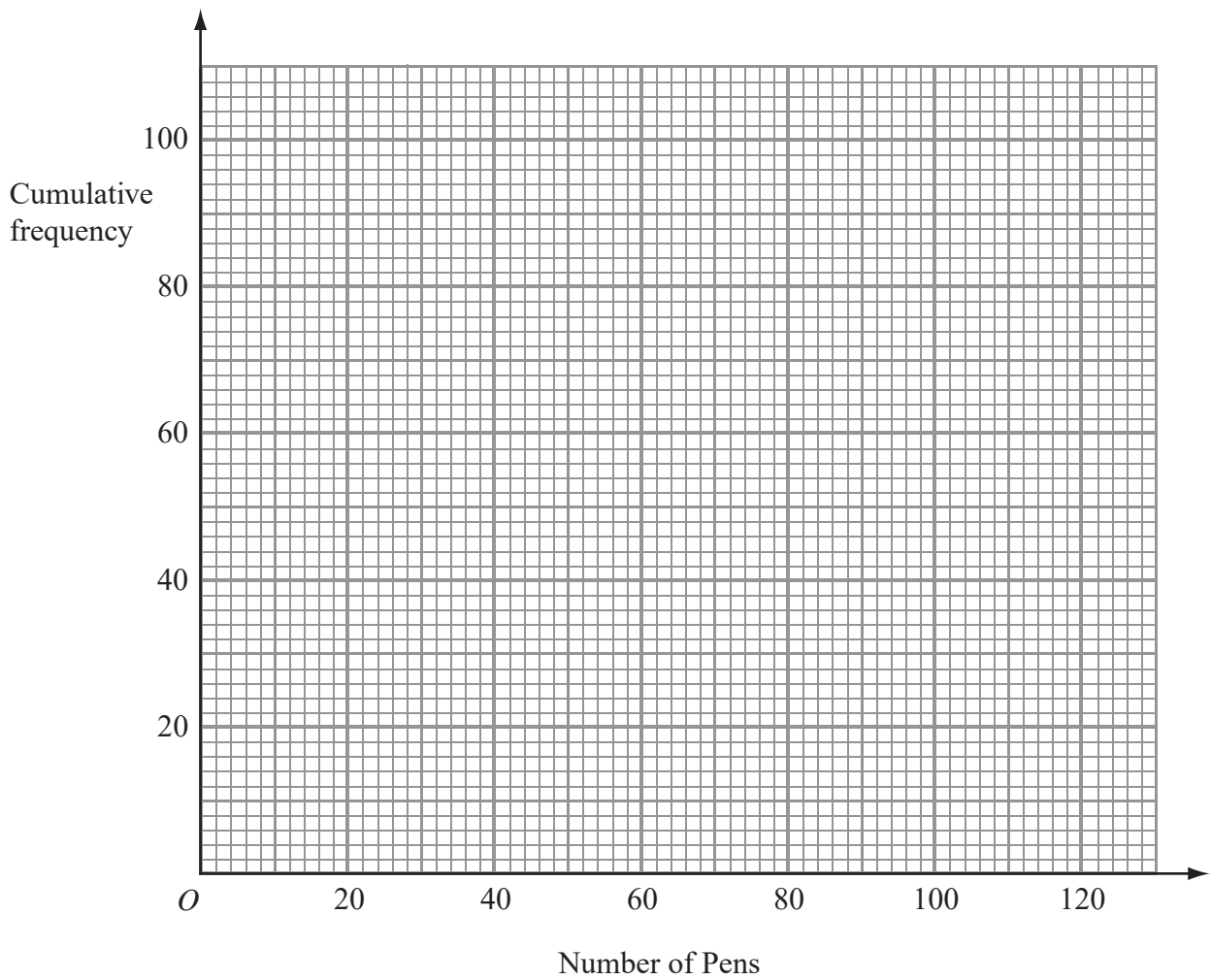
Number of pens	Cumulative frequency
$0 < n \leq 20$	18
$0 < n \leq 40$	
$0 < n \leq 60$	
$0 < n \leq 80$	
$0 < n \leq 100$	
$0 < n \leq 120$	

(1)

(b) On the grid, draw a cumulative frequency graph for your table.

(2)





(c) Use your graph to find an estimate for the median number of pens.

.....
(1)

Total for Question 7 is 4 marks



8 A company tested 100 batteries.

The table shows information about the number of hours that the batteries lasted.

Time (t hours)	Frequency
$50 \leq t < 55$	12
$55 \leq t < 60$	21
$60 \leq t < 65$	36
$65 \leq t < 70$	23
$70 \leq t < 75$	8

(a) Complete the cumulative frequency table for this information.

(1)

Time (t hours)	Cumulative frequency
$50 \leq t < 55$	12
$50 \leq t < 60$	
$50 \leq t < 65$	
$50 \leq t < 70$	
$50 \leq t < 75$	

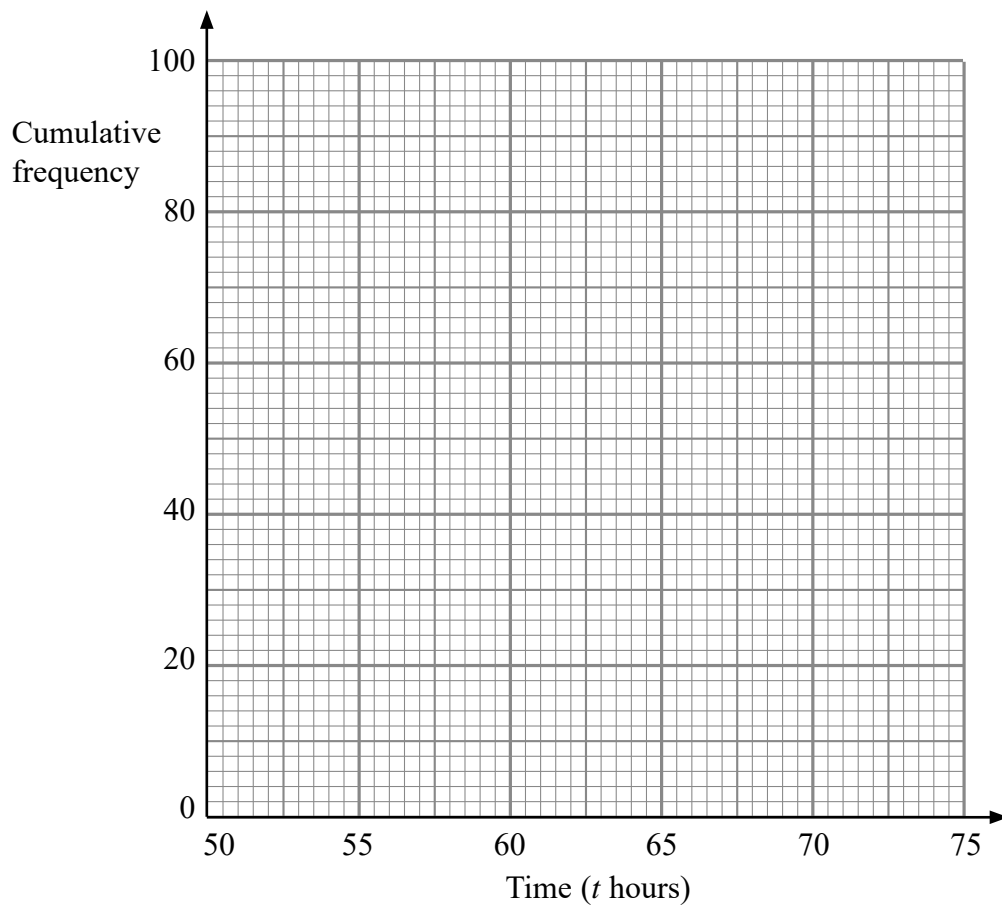
(b) On the grid, draw a cumulative frequency graph for your completed table.

(2)

(c) Use your completed graph to find an estimate for the median time.
You must state the units of your answer.

.....
(2)





Total for Question 8 is 5 marks



9 The table gives some information about the number of fish caught in a match.

Number of fish	Frequency
$0 < n \leq 20$	16
$20 < n \leq 30$	26
$30 < n \leq 40$	23
$40 < n \leq 50$	10
$50 < n \leq 60$	5

(a) Write down the modal class interval.

.....
(1)

(b) Complete the cumulative frequency table.

Number of fish	Cumulative Frequency
$0 < n \leq 20$	
$0 < n \leq 30$	
$0 < n \leq 40$	
$0 < n \leq 50$	
$0 < n \leq 60$	

(1)

(c) On the grid opposite, draw a cumulative frequency graph for your table.

(2)

(d) Use your graph to find an estimate for

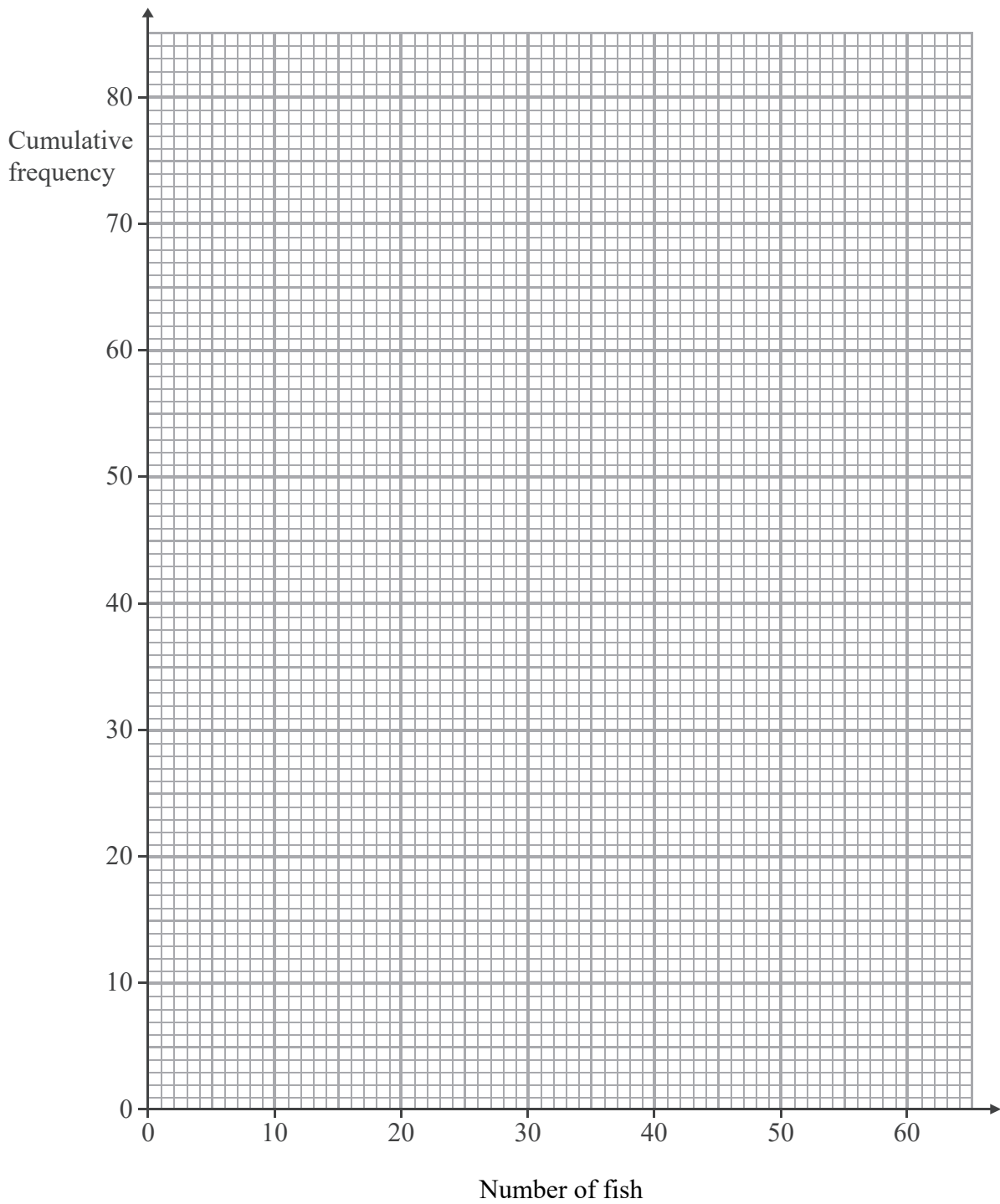
(i) the median number of fish,

.....
(2)

(ii) the interquartile range of the number of fish.

.....
(3)

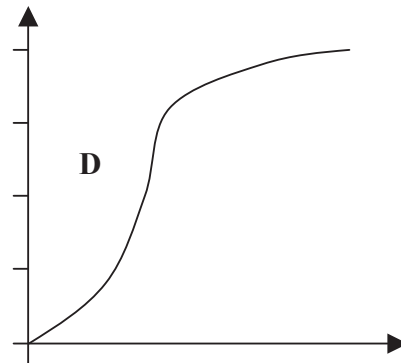
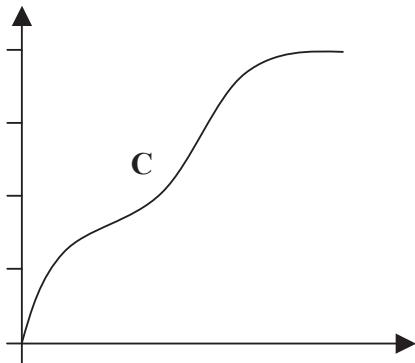
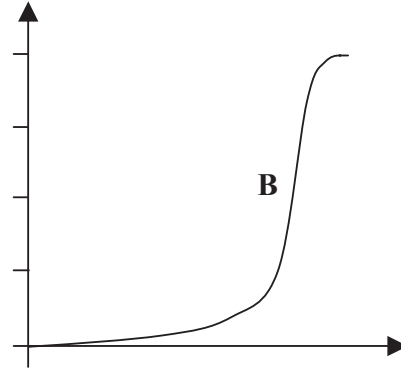
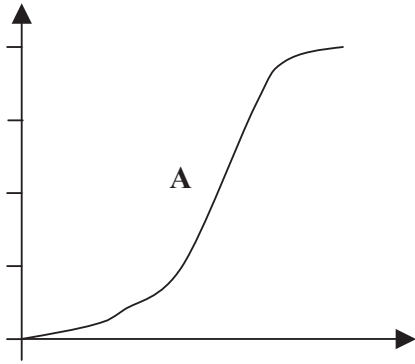




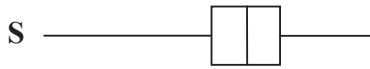
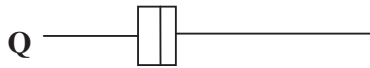
Total for Question 9 is 9 marks



10 Here are four cumulative frequency diagrams.



Here are four box plots.



For each box plot, write down the letter of the appropriate cumulative frequency diagram.

P and

Q and

R and

S and

Total for Question 10 is 2 marks



11 The table shows information about the time, m millimetres 120 tomato plants grow in a week.

Time (m millimetres)	Frequency
$70 < m \leq 80$	4
$80 < m \leq 90$	12
$90 < m \leq 100$	34
$100 < m \leq 110$	32
$110 < m \leq 120$	26
$120 < m \leq 130$	12

(a) Write down the modal class interval.

.....
(1)

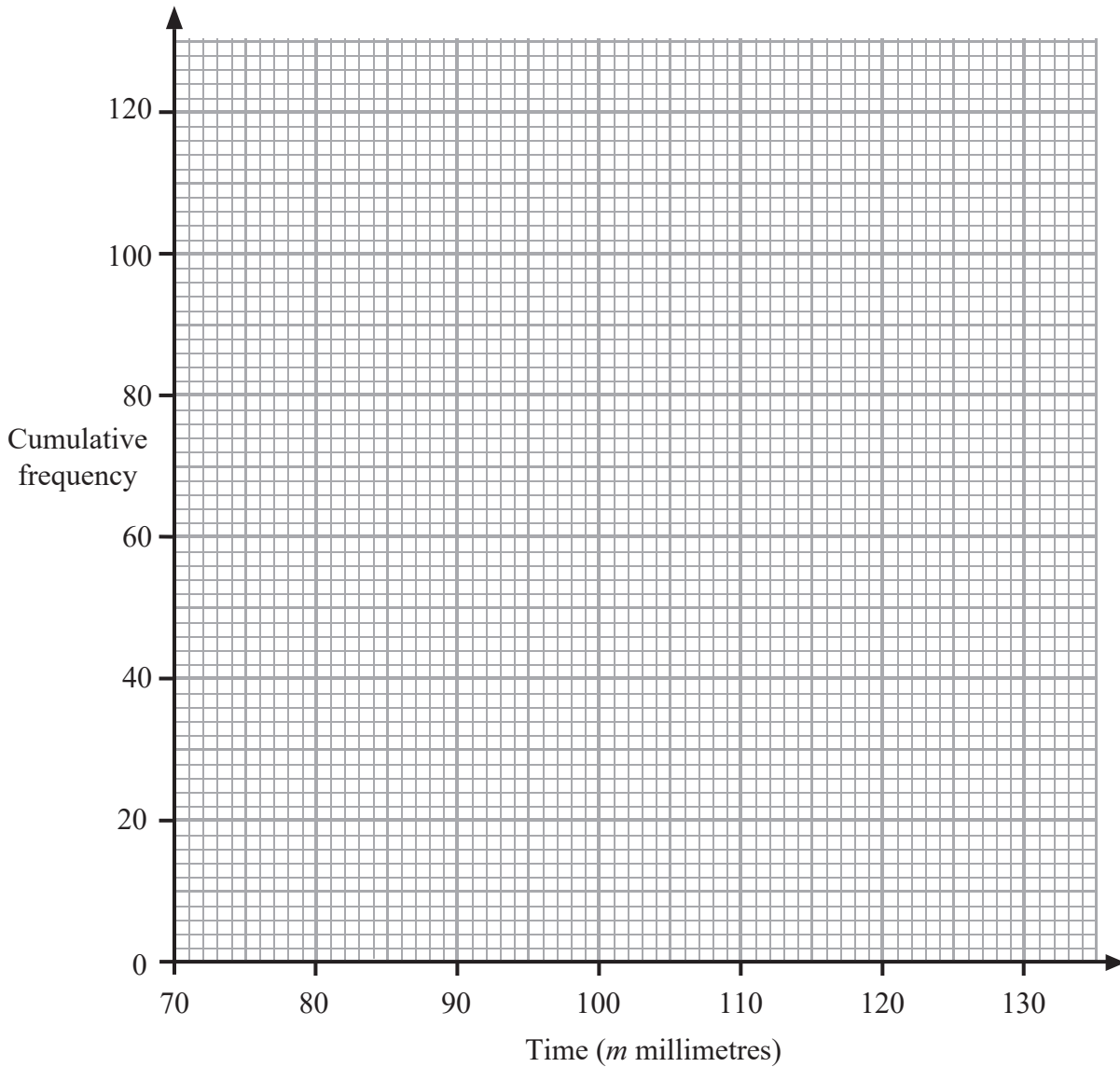
(b) Complete the cumulative frequency table.

Time (m millimetres)	Cumulative frequency
$70 < m \leq 80$	4
$70 < m \leq 90$	
$70 < m \leq 100$	
$70 < m \leq 110$	
$70 < m \leq 120$	
$70 < m \leq 130$	

(1)



(c) On the grid, draw a cumulative frequency graph for your cumulative frequency table.



(2)

(d) Use your graph to find an estimate for the median.

..... minutes

(1)

Total for Question 11 is 5 marks



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