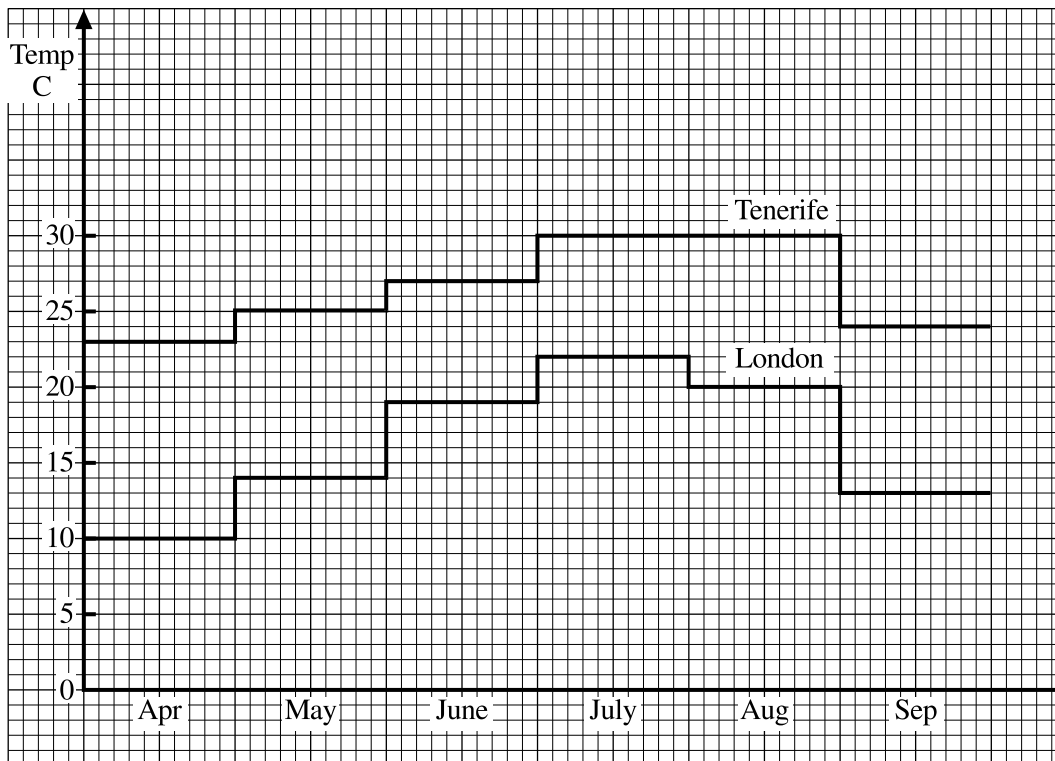


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**Question 1**

The diagram shows the average midday temperature in London and in Tenerife during the summer months.

- (a) During which months is the average midday temperature normally the highest in Tenerife? **(1 mark)**
- (b) During which month is there the greatest difference between the average midday temperature between London and Tenerife? **(1 mark)**
- (c) Write down the average midday temperature for London in May. **(1 mark)**
- (d) Work out the mean average midday temperature for June to August in Tenerife. **(2 marks)**

You can exchange £1 for 189 pesetas in Tenerife.  
A large bottle of sun lotion costs 1375 pesetas.

- (e) Change 1375 pesetas into pounds and pence. Give your answer correct to the nearest penny. **(3 marks)**
-

## Question 2

Ben asked 50 people how much they paid for a new computer.

The results are shown in this frequency table.

| Price (£ $P$ )       | Number of Computers |  |  |
|----------------------|---------------------|--|--|
| $0 < P \leq 500$     | 7                   |  |  |
| $500 < P \leq 1000$  | 20                  |  |  |
| $1000 < P \leq 1500$ | 11                  |  |  |
| $1500 < P \leq 2000$ | 9                   |  |  |
| $2000 < P \leq 2500$ | 3                   |  |  |

(a) Calculate an estimate for the mean price paid for a new computer. (4 marks)

By the end of the year, the value of a computer falls by 15 % of its value at the start of the year.

A new computer has a value of £1200.

(b) Calculate the value by the end of the third year. (4 marks)

---

**Question 3**

There are 50 pupils in each of the groups, Year 9, Year 10 and Year 11 at Lucea High School.

A survey was carried out to find how many pets these pupils owned.

The results are shown in the table below.

| Number of pets | Year 9 | Year 10 | Year 11 |
|----------------|--------|---------|---------|
| 0              | 2      | 5       | 32      |
| 1              | 29     | 22      | 11      |
| 2              | 14     | 19      | 6       |
| 3              | 5      | 4       | 1       |
| 4              | 1      | 0       | 0       |

- (a) How many pupils in Year 10 own no pets?
- (b) How many of the pupils own exactly 2 pets?
- (c) What is the most common number of pets owned by pupils?
- (d) Which year group owns the least number of pets? Use the figures to explain your answer.

---

**Question 4**

The table shows the number of students in three groups attending Maths City High School last Monday. No student belonged to more than one group.

| Group    | Number of students |
|----------|--------------------|
| <i>A</i> | 135                |
| <i>B</i> | 225                |
| <i>C</i> | 200                |

Mrs Allen carried out a survey about the students' travelling times from home to school last Monday.

Mrs Allen worked out that

- the mean time for Group *A* students was 24 minutes,
- the mean time for Group *B* students was 32 minutes,
- the mean time for Group *C* students was the same as the mean time for all 560 students.

(a) Work out the mean time for all 560 students.

..... minutes  
**(4 marks)**

Mrs Allen interviewed some of these students.

She used a stratified sample of 50 students according to each group.

(b) Work out the number of students from each group which should have been in her sample of 50.

Group *A* .....

Group *B* .....

Group *C* .....

**(3 marks)**

---

**Question 5**

Tony carries out a survey about the words in a book.

He chooses a page at random.

He then counts the number of letters in each of the first hundred words on the page.

The table shows Tony's results.

|                             |   |   |    |    |    |   |   |   |
|-----------------------------|---|---|----|----|----|---|---|---|
| Number of letters in a word | 1 | 2 | 3  | 4  | 5  | 6 | 7 | 8 |
| Frequency                   | 6 | 9 | 31 | 24 | 16 | 9 | 4 | 1 |

A word is chosen at random from the hundred words.

(a) What is the probability that the word will have 5 letters? **(2 marks)**

The book has 25 000 words.

(b) Estimate the number of 5 letter words in the book. **(2 marks)**

The book has 125 pages with a total of 25 000 words.

The words on each of the first 75 pages are counted.

The mean is 192.

(c) Calculate the mean number of words per page for the remaining 50 pages. **(2 marks)**

**Question 6**

The table gives information about the ages, in years, of 100 aeroplanes.

| Age<br>( $t$ years) | Frequency |
|---------------------|-----------|
| $0 < t \leq 5$      | 41        |
| $5 < t \leq 10$     | 26        |
| $10 < t \leq 15$    | 20        |
| $15 < t \leq 20$    | 10        |
| $20 < t \leq 25$    | 1         |

- (a) Work out an estimate of the mean age of the aeroplanes.

**(4 marks)**

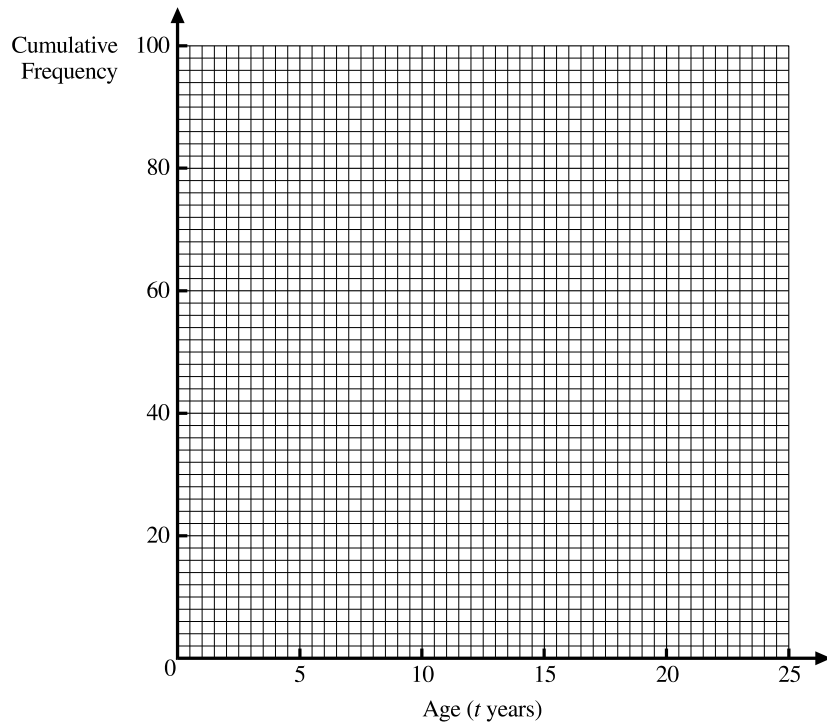
- (b) Complete the cumulative frequency table.

| Age<br>( $t$ years) | Frequency |
|---------------------|-----------|
| $0 < t \leq 5$      |           |
| $0 < t \leq 10$     |           |
| $0 < t \leq 15$     |           |
| $0 < t \leq 20$     |           |
| $0 < t \leq 25$     |           |

**(1 mark)**

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

**(2 marks)**



- (d) Use your graph to find an estimate of the upper quartile of the ages.

Show your method clearly.

**(2 marks)**

---

**Question 7**

A class took a test. The mean mark of the 20 boys in the class was 17.4. The mean mark of the 10 girls in the class was 13.8.

(a) Calculate the mean mark for the whole class. **(2 marks)**

5 pupils in another class took the test.

Their marks, written in order, were 1, 2, 3, 4 and  $x$ .

The mean of these 5 marks is equal to twice the median of these 5 marks.

(b) Calculate the value of  $x$ . **(3 marks)**

---

**Question 8**

Ten teams took part in a quiz.

Their scores are shown below.

15, 13, 17, 11, 14, 15, 16, 15, 16, 8.

Work out the mean score.

---

**Question 9**

Andrew did a survey at the seaside for his science coursework.  
He measured the lengths of 55 pieces of seaweed.  
The results of the survey are shown in the table.

| Length of seaweed<br>( $L$ cm) | Frequency |
|--------------------------------|-----------|
| $0 < L \leq 20$                | 2         |
| $20 < L \leq 40$               | 22        |
| $40 < L \leq 60$               | 13        |
| $60 < L \leq 80$               | 10        |
| $80 < L \leq 100$              | 5         |
| $100 < L \leq 120$             | 2         |
| $120 < L \leq 140$             | 1         |

Andrew needs to calculate an estimate for the mean length of the pieces of seaweed.

- (a) Work out an estimate for the mean length of the piece of seaweed.  
Give your answer correct to 1 decimal place.
- (b) Write down the interval that contains the median length of a piece of seaweed.

---

**Question 10**

A survey was carried out to find how much time was needed by a group of pupils to complete homework set on a particular Monday evening.

The results are shown in the table below.

| Time, $t$<br>hours,<br>spent on<br>homework | Number<br>of pupils |  |  |
|---|---------------------|--|--|
| 0   | 3                   |  |  |
| $0 < t \leq 1$                              | 14                  |  |  |
| $1 < t \leq 2$                              | 17                  |  |  |
| $2 < t \leq 3$                              | 5                   |  |  |
| $3 < t \leq 4$                              | 1                   |  |  |

Calculate an estimate for the mean time spent on homework by the pupils in the group.

---

**Question 11**

Bronwen owns a pet shop.

The table gives information about the weights of hamsters in Bronwen's shop.

| Weight $w$ of hamsters in g | Number of hamsters |  |  |
|-----------------------------|--------------------|--|--|
| $28 < w \leq 30$            | 9                  |  |  |
| $30 < w \leq 32$            | 5                  |  |  |
| $32 < w \leq 34$            | 4                  |  |  |
| $34 < w \leq 36$            | 2                  |  |  |
|                             |                    |  |  |

Calculate an estimate for the mean weight of the hamsters in Bronwen's shop.

---

**Question 12**

150 year 11 pupils took a mathematics examination.  
The table shows information about their marks.

| Floor area ( $x$ ) in $\text{m}^2$ | Cumulative Frequency |
|------------------------------------|----------------------|
| $0 < x \leq 100$                   | 4                    |
| $0 < x \leq 150$                   | 20                   |
| $0 < x \leq 200$                   | 49                   |
| $0 < x \leq 250$                   | 97                   |
| $0 < x \leq 300$                   | 114                  |
| $0 < x \leq 350$                   | 118                  |
| $0 < x \leq 400$                   | 120                  |

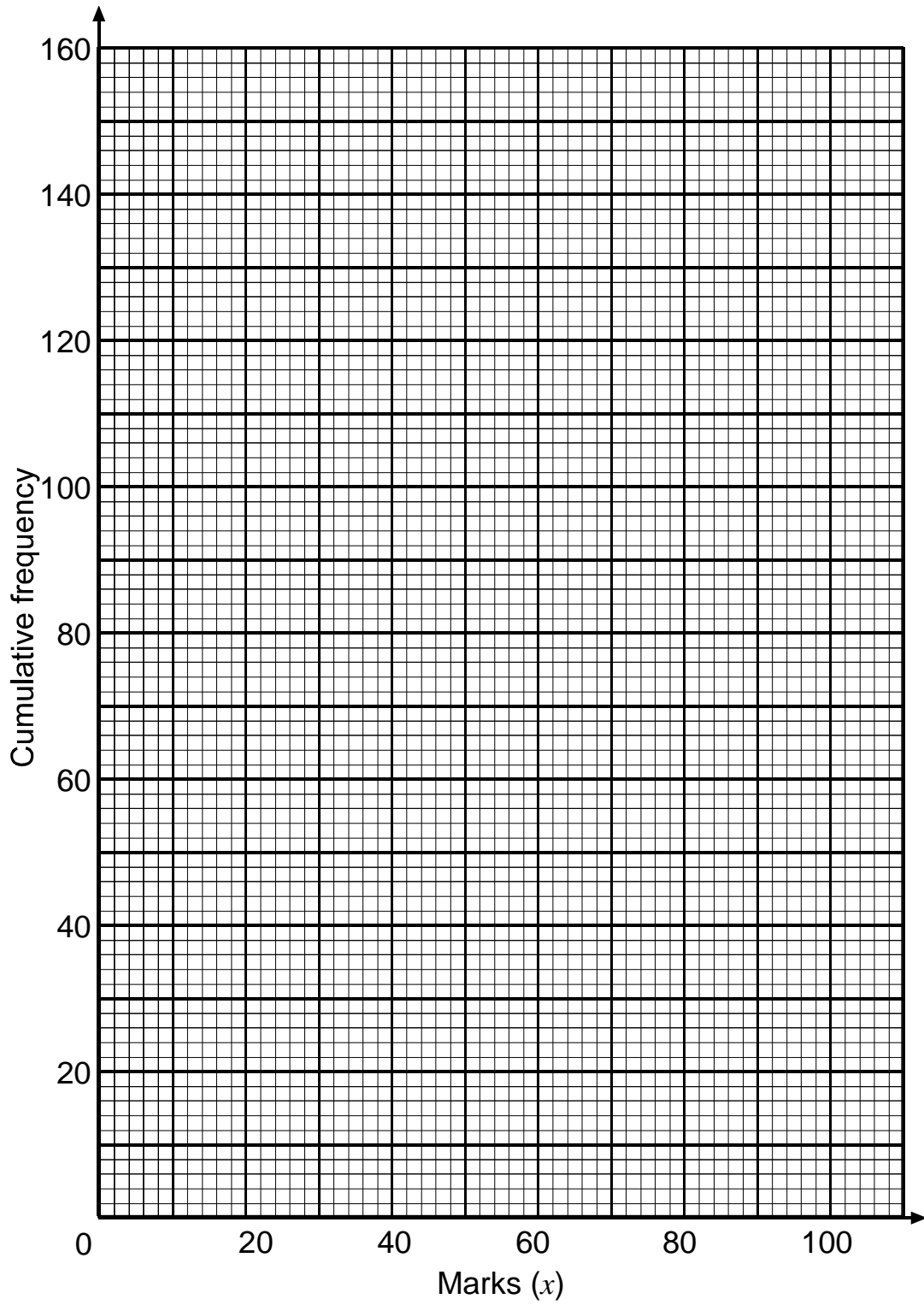
(a) Complete the cumulative frequency table below.

| Marks ( $x$ )    | Cumulative Frequency |
|------------------|----------------------|
| $0 \leq x < 20$  |                      |
| $0 \leq x < 30$  |                      |
| $0 \leq x < 40$  |                      |
| $0 \leq x < 50$  |                      |
| $0 \leq x < 60$  |                      |
| $0 \leq x < 70$  |                      |
| $0 \leq x < 80$  |                      |
| $0 \leq x < 100$ |                      |

(b) On the grid on the next page, draw a cumulative frequency diagram to show these marks.

60% of the pupils passed the examination.

(c) Use your diagram to find an estimate for the pass mark for the examination.



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**Question 13**

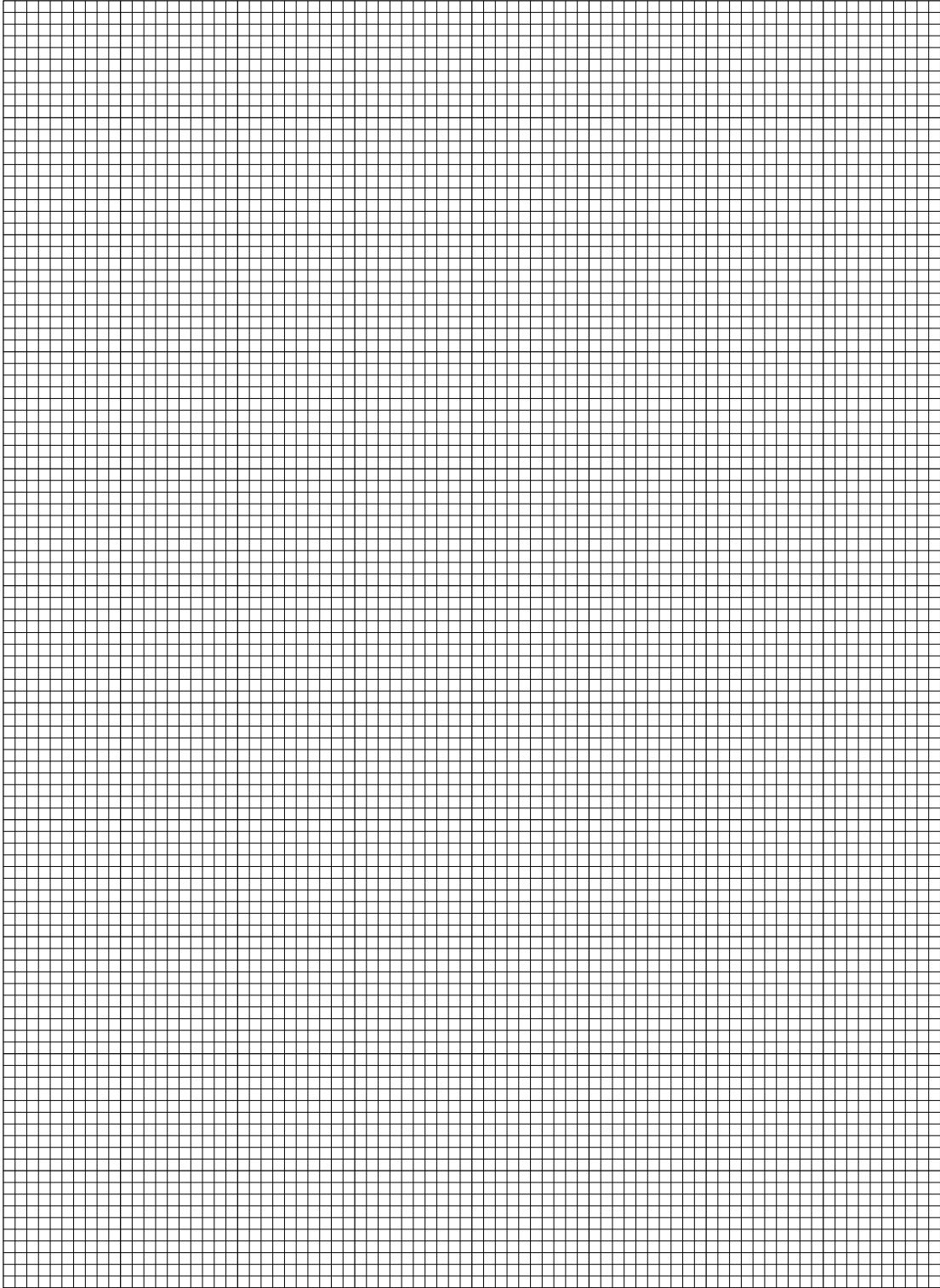
Twenty five people took part in a competition.  
The points scored are grouped in the frequency table below.

| Points scored | Number of people |  |  |
|---------------|------------------|--|--|
| 1 to 5        | 1                |  |  |
| 6 to 10       | 2                |  |  |
| 11 to 15      | 5                |  |  |
| 16 to 20      | 7                |  |  |
| 21 to 25      | 8                |  |  |
| 26 to 30      | 2                |  |  |

- (a) Work out an estimate for the mean number of points scored. **(3 marks)**  
(b) Complete the table below to show the cumulative frequency for this data. **(2 marks)**

| Points scored | Cumulative frequency |
|---------------|----------------------|
| 1 to 5        |                      |
| 6 to 10       |                      |
| 11 to 15      |                      |
| 16 to 20      |                      |
| 21 to 25      |                      |
| 26 to 30      |                      |

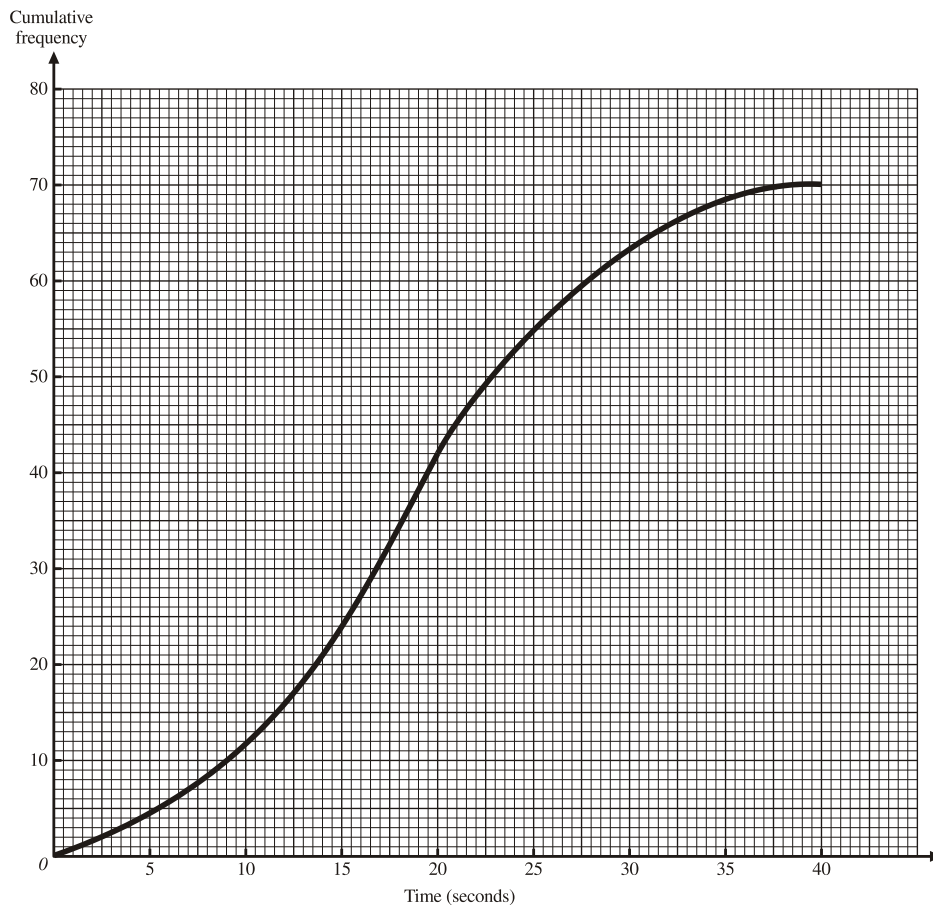
- (c) On graph paper, draw a cumulative frequency graph for this data. **(3 marks)**  
(d) Use your graph to find an estimate for the median of this data. **(1 mark)**



---

**Question 14**

Fred carried out a survey of the time, in seconds, between one car and the next car on a road. His results are shown in the cumulative frequency graph on the grid opposite.



- (a) How many cars were there in the survey? **(1 mark)**
- (b) Use the graph to estimate the median time. **(2 marks)**
- (c) Use the graph to estimate the percentage of times that were greater than 25 seconds. **(3 marks)**

---

**Question 15**

Sybil weighed some pieces of cheese.

The table gives information about her results.

| Weight ( $w$ ) grams | Frequency |  |  |
|----------------------|-----------|--|--|
| $90 < w \leq 94$     | 1         |  |  |
| $94 < w \leq 98$     | 2         |  |  |
| $98 < w \leq 102$    | 6         |  |  |
| $102 < w \leq 106$   | 1         |  |  |

Work out an estimate of the mean weight.

..... grams  
**(4 marks)**

---

**Question 16**

A shop employs 8 men and 2 women.

The mean weekly wage of the 10 employees is £396.

The mean weekly wage of the 8 men is £400.

Calculate the mean weekly wage of the 2 women.

£ .....  
**(4 marks)**

---

**Question 17**

The grouped frequency table shows information about the number of hours worked by each of 200 headteachers in one week.

| Number of hours worked<br>( $t$ ) | Frequency |
|-----------------------------------|-----------|
| $0 < t \leq 30$                   | 0         |
| $30 < t \leq 40$                  | 4         |
| $40 < t \leq 50$                  | 18        |
| $50 < t \leq 60$                  | 68        |
| $60 < t \leq 70$                  | 79        |
| $70 < t \leq 80$                  | 31        |

- (a) Work out an estimate of the mean number of hours worked by the headteachers that week.

..... hours  
(4 marks)

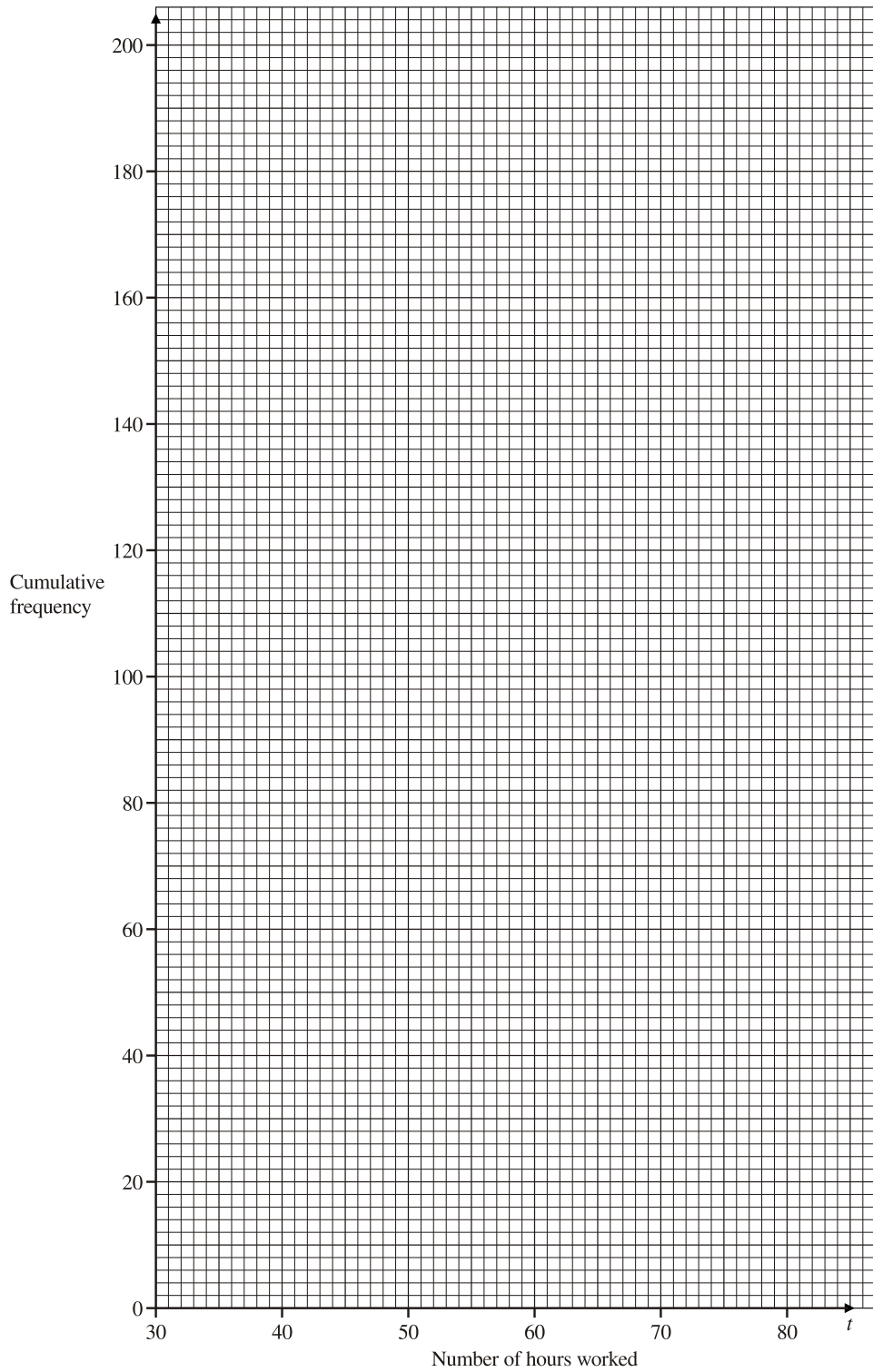
- (b) Complete the cumulative frequency table.

| Number of hours worked<br>( $t$ ) | Cumulative<br>Frequency |
|-----------------------------------|-------------------------|
| $0 < t \leq 30$                   | 0                       |
| $0 < t \leq 40$                   |                         |
| $0 < t \leq 50$                   |                         |
| $0 < t \leq 60$                   |                         |
| $0 < t \leq 70$                   |                         |
| $0 < t \leq 80$                   |                         |

(1 mark)

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

(2 marks)



**(d)** Use your graph to find an estimate for the interquartile range of the number of hours worked by the headteachers that week.  
 Show your method clearly.

..... hours  
**(2 marks)**



---

**Question 18**

Mary recorded the heights, in centimetres, of the girls in her class.

She put the heights in order.

132    144    150    152    160    162    162    167  
167    170    172    177    181    182    182

**(a)** Find

**(i)** the lower quartile,

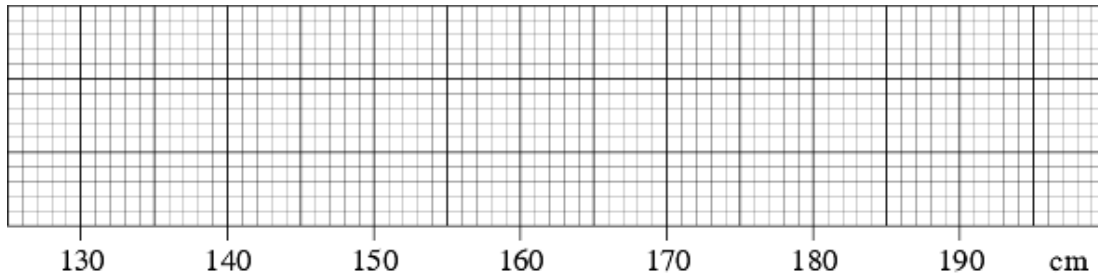
..... cm

**(ii)** the upper quartile.

..... cm

**(2 marks)**

**(b)** On the grid, draw a box plot for this data.



**(3 marks)**

---

**Question 19**

27 boys and 34 girls took the same test.  
The mean mark of the boys was 76.  
The mean mark of the girls was 82.

Calculate the mean mark of all these students.  
Give your answer correct to 1 decimal place.

.....  
**(3 marks)**

---

**Question 20**

32 students took an English test.

There were 25 questions in the test.

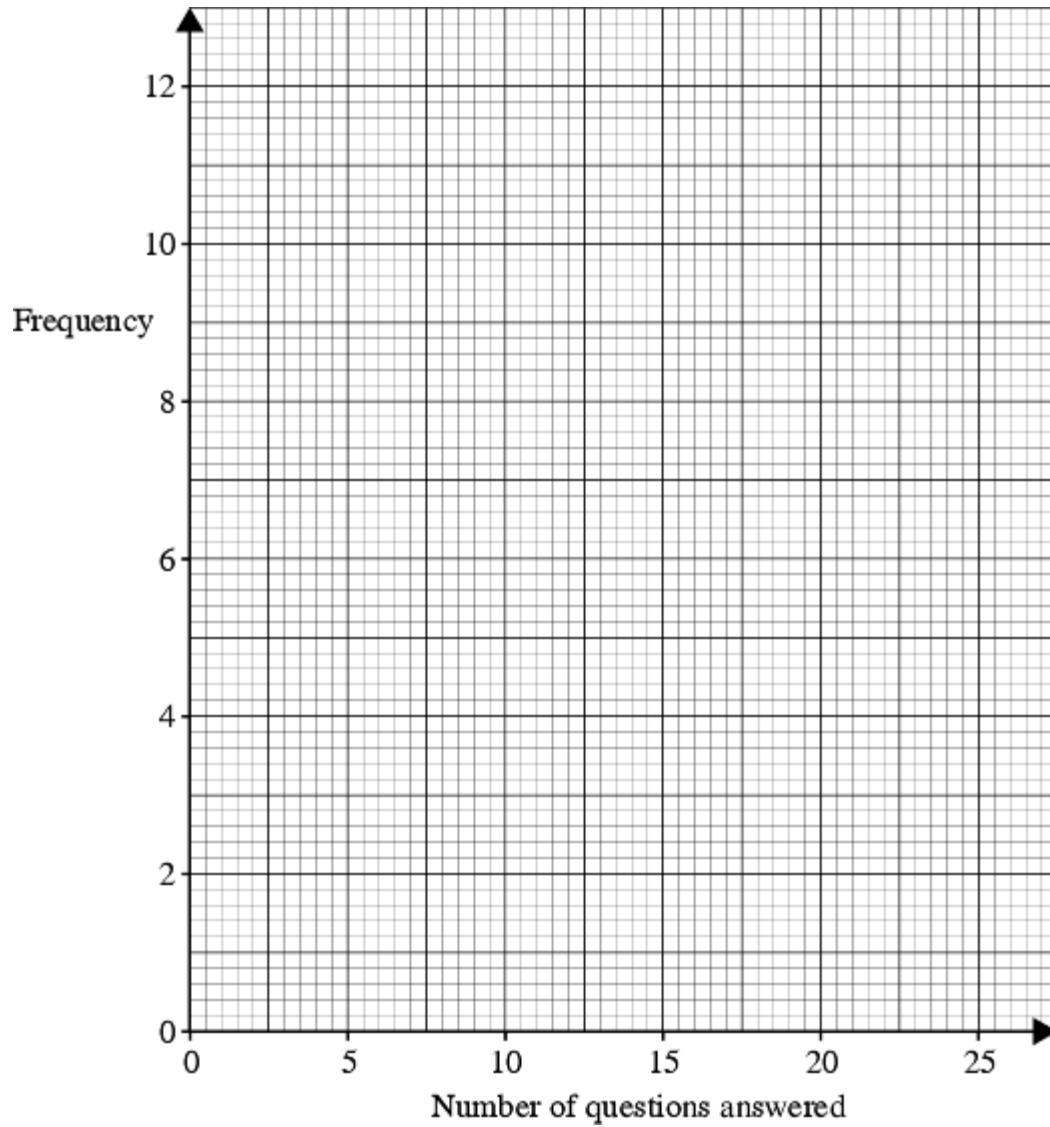
The grouped frequency table gives information about the number of questions the students answered.

| Number of test questions answered | Frequency |
|-----------------------------------|-----------|
| 1–5                               | 1         |
| 6–10                              | 3         |
| 11–15                             | 9         |
| 16–20                             | 8         |
| 21–25                             | 11        |

(a) Write down the class interval which contains the median.

.....  
(2 marks)

(b) Draw a frequency polygon to show the information in the table.  
Use the grid below.



**(2 marks)**