



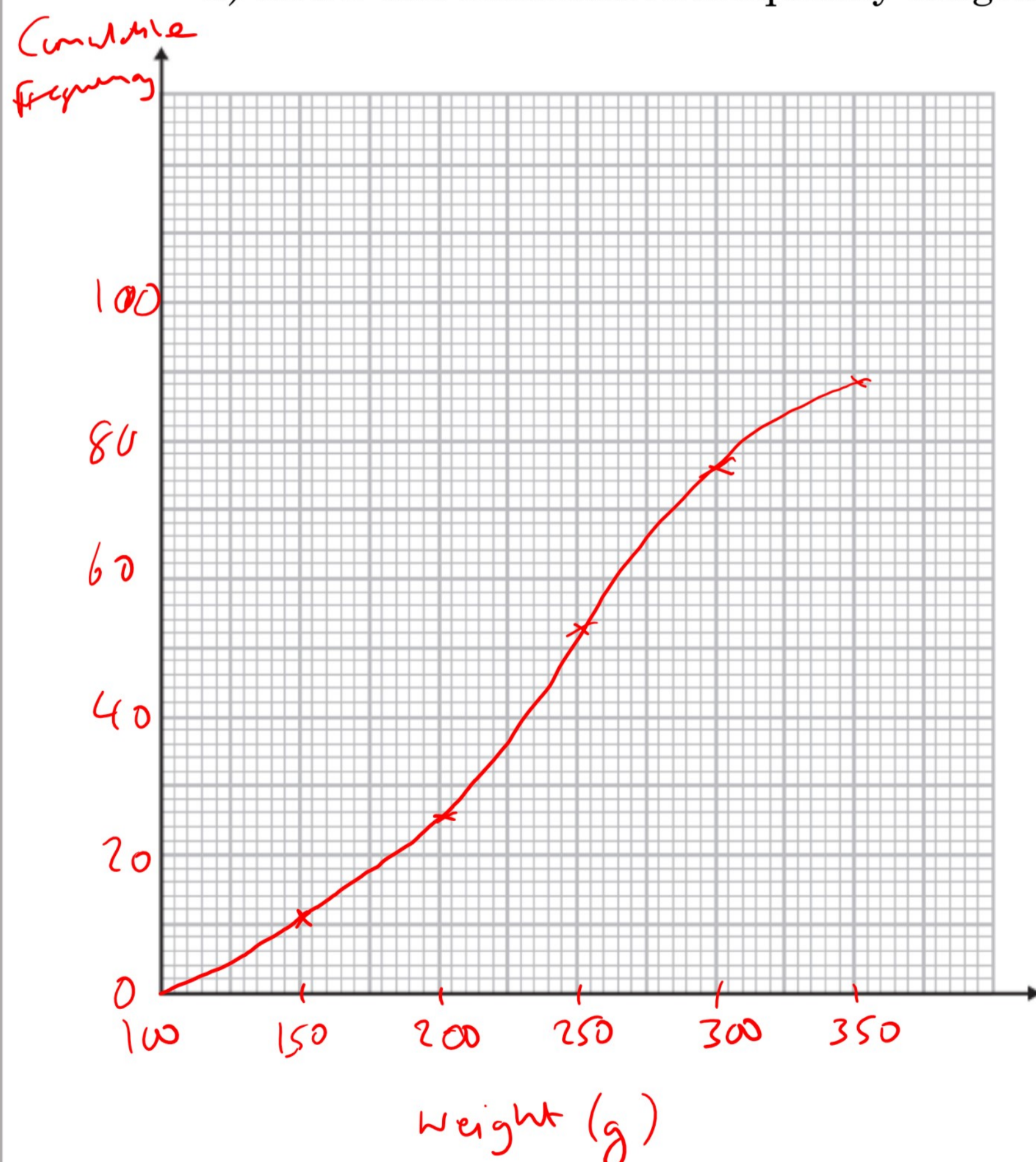
Cumulative Frequency Exam Practice

Q1. a) A farmer takes a sample of his pumpkins and weighs them.
Complete the table.

Weight g (grams)	Frequency	Cumulative Frequency
$100 \leq g < 150$	10	10
$150 \leq g < 200$	15	25
$200 \leq g < 250$	28	53
$250 \leq g < 300$	22	75
$300 \leq g < 350$	14	89

Answer: _____
(2 marks)

b) Draw the cumulative frequency diagram below.



Answer: _____
(2 marks)

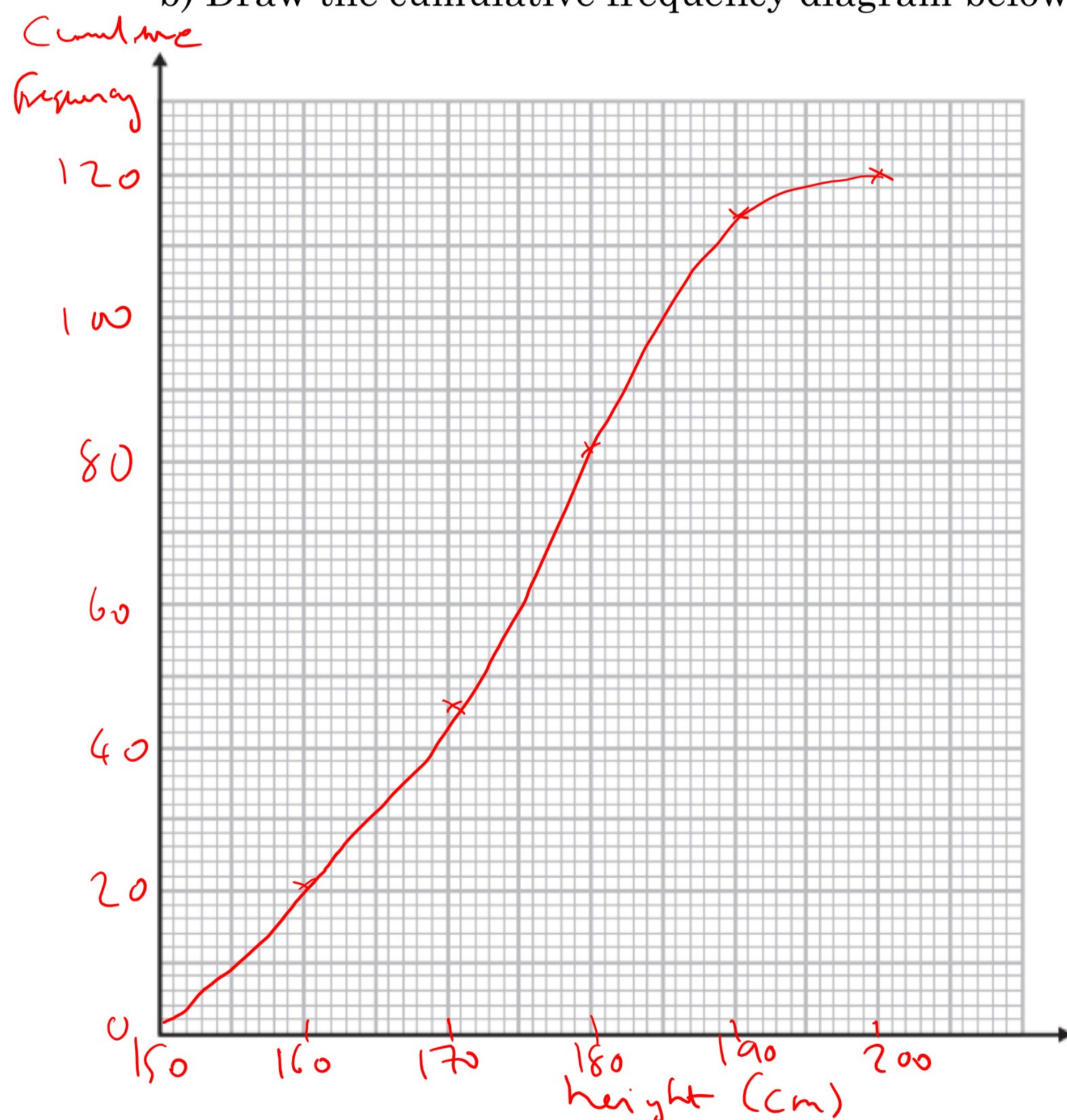


Q2. In year 10, the heights of 120 pupils are summarised below.
Complete the table.

Height h (cm)	Frequency	Cumulative Frequency
$150 \leq h < 160$	21	21
$160 \leq h < 170$	25	46
$170 \leq h < 180$	36	82
$180 \leq h < 190$	32	114
$190 \leq h < 200$	6	120

Answer: _____
(2 marks)

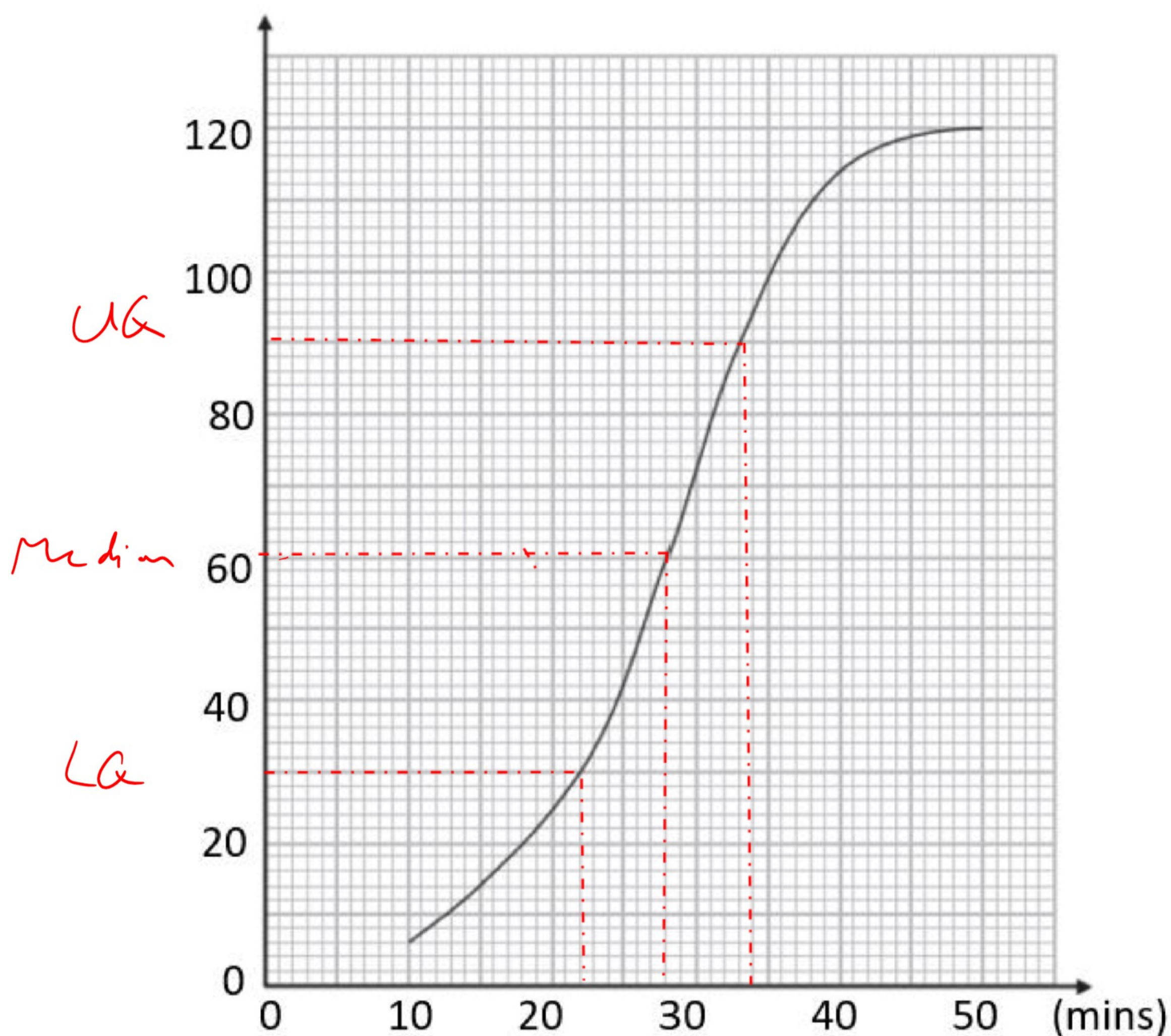
b) Draw the cumulative frequency diagram below.



Answer: _____
(2 marks)



Q3. Below is a cumulative frequency graph for the times taken to solve a puzzle.



Estimate the median, upper & lower quartiles.

• $Median = \left(\frac{120}{2}\right)^{th}$ data value
 $\Rightarrow 60^{th}$ (28 mins)

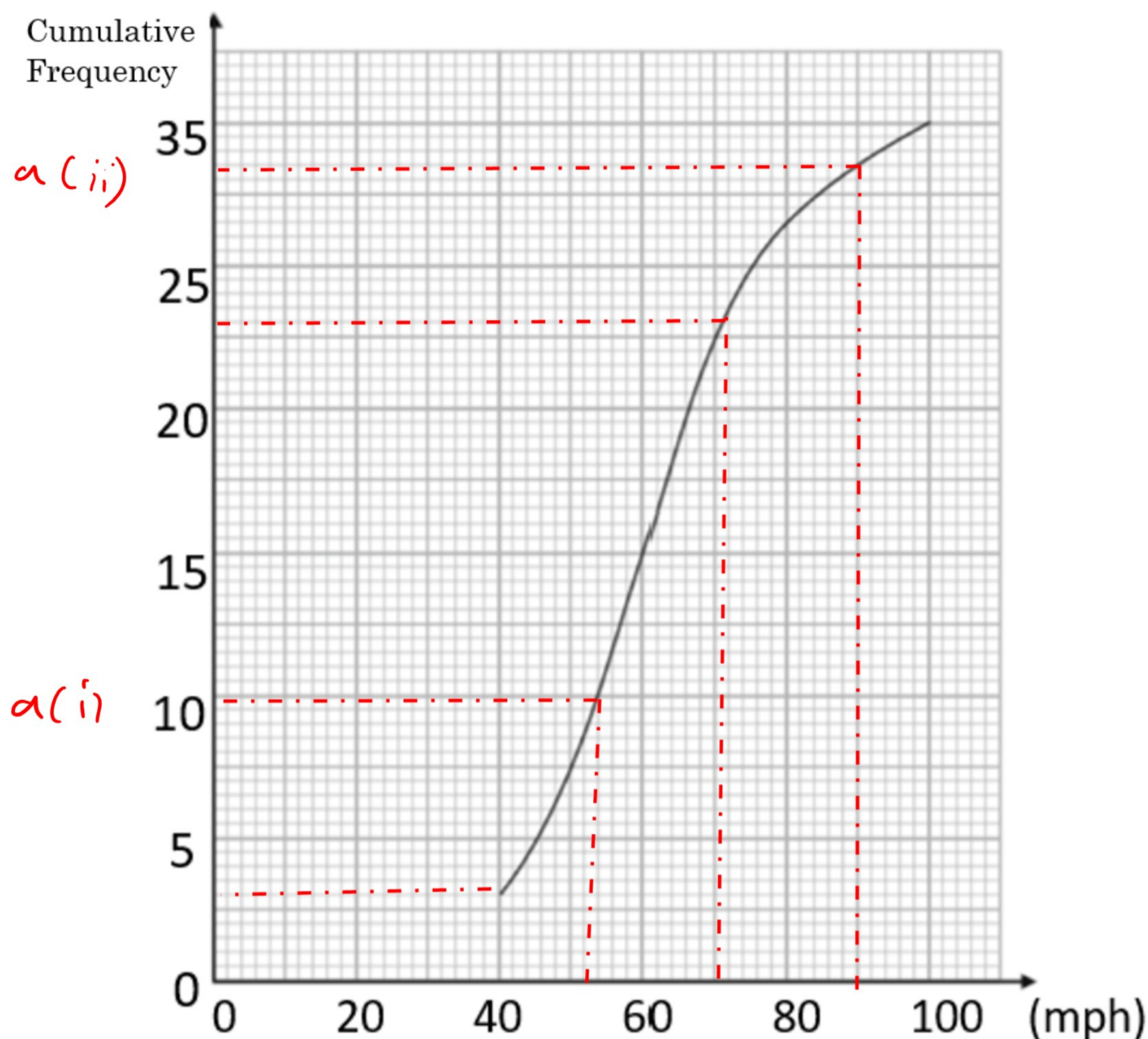
• $LQ = \left(\frac{120}{4}\right)^{th}$ data value
 $\Rightarrow 30^{th}$ (22 mins)

• $UQ = 3\left(\frac{120}{4}\right)^{th} = 90^{th}$ (34 mins)

Answer: 28, 22, 34 mins
(3 marks)



Q4. Below is a cumulative frequency graph for the speeds of cars passing under a bridge.



a) Estimate the numbers of cars travelling:

(i) more than 52 mph (ii) less than 90 mph

(i) 30 cars in total; 10 cars travelling ≤ 50 mph,
So $30 - 10 = 20$ cars

Answer: _____

(2 marks)

(ii) 32 cars

b) What % of cars are moving between 40 and 70mph?

There are $23 - 3$ cars travelling between 40 and 70 mph

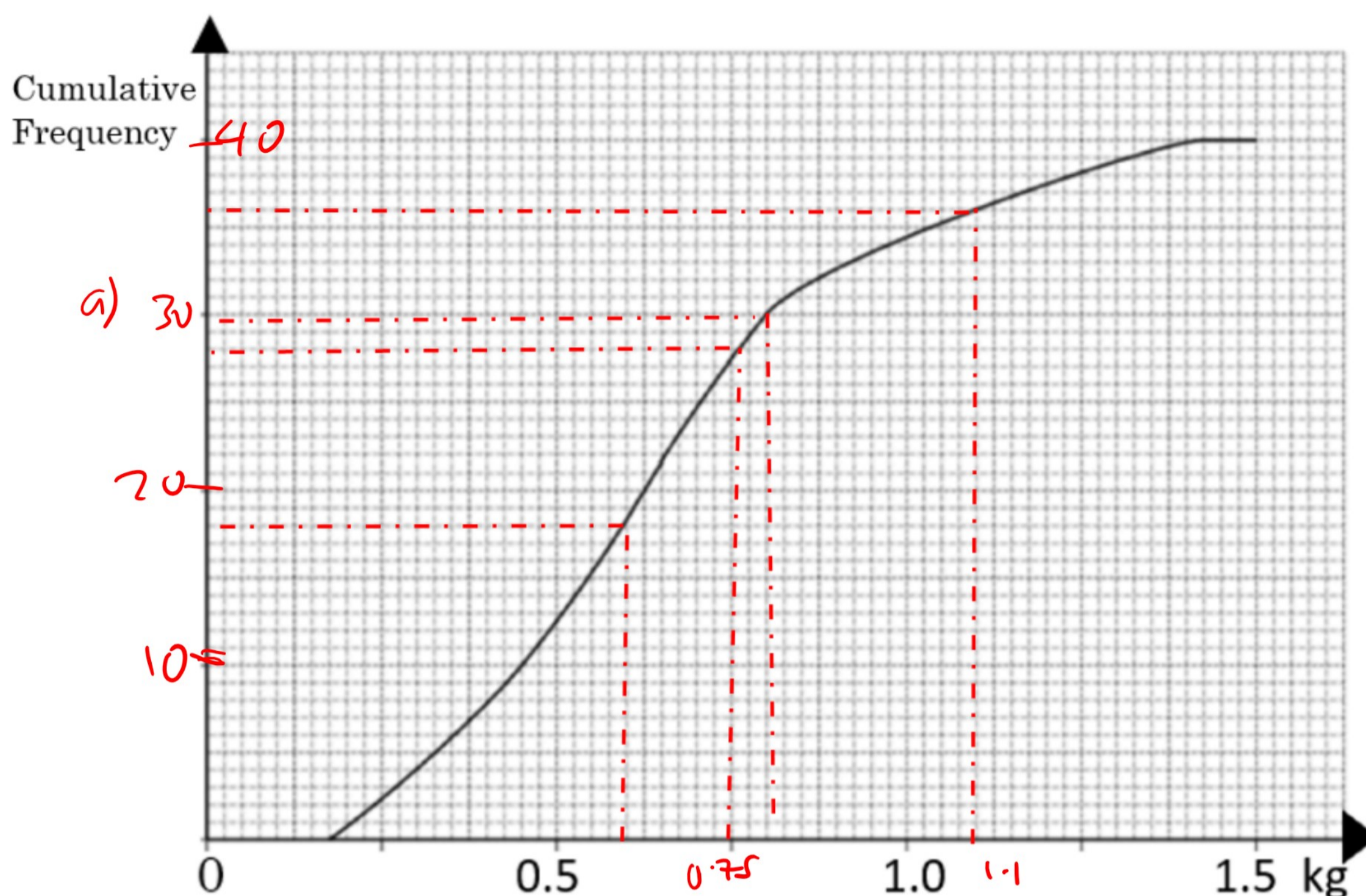
$$\therefore \frac{20}{30} = 66.7\%$$

Answer: 66.7%

(2 marks)



Q5. Tim grows and sells mangoes. The graph below shows the distribution of the 40 mangoes in his field.



a) Find the weight of a mango which corresponds to the upper quartile.

$$\begin{aligned} \text{UQ} &= 3 \left(\frac{40}{10} \right)^{\text{th}} = 30^{\text{th}} \text{ mango} \\ &= 0.85 \text{ kg} \end{aligned}$$

Answer: 0.85 kg
(1 mark)

b) Estimate the % of mangoes which weigh between 750g and 1100g

$$\begin{aligned} 36 - 28 &= 8 \\ \frac{8}{40} \times 100 &= 20\% \end{aligned}$$

Answer: 20%
(2 marks)

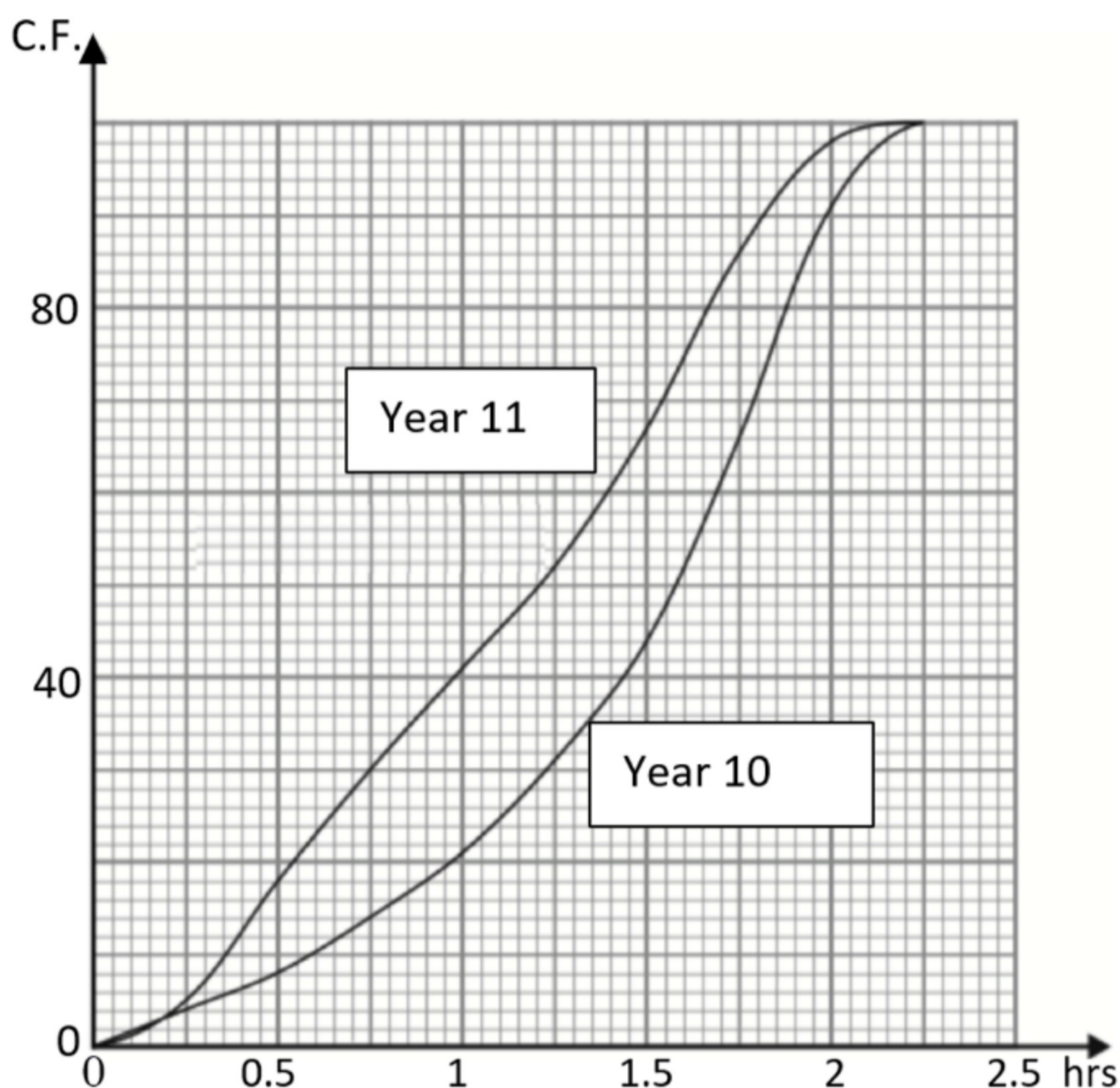
c) Tim only sells mangoes weighing more than 0.6kg. Estimate how many he will sell.

$$\begin{aligned} 18 \text{ mangoes weigh less than } 0.6 \text{ kg.} \\ 40 - 18 &= 22 \end{aligned}$$

Answer: 22 mangoes
(1 mark)



Q6. This cumulative frequency graph show the amount of time spent on homework per night.



a) How many pupils were surveyed in total?

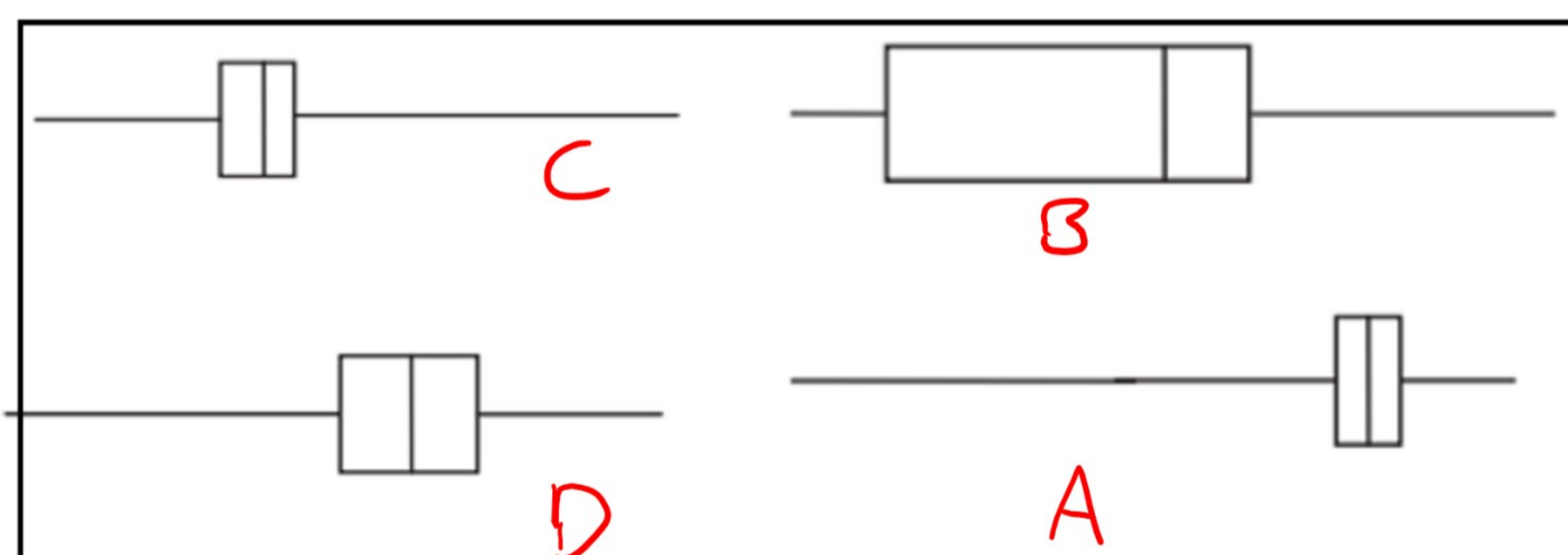
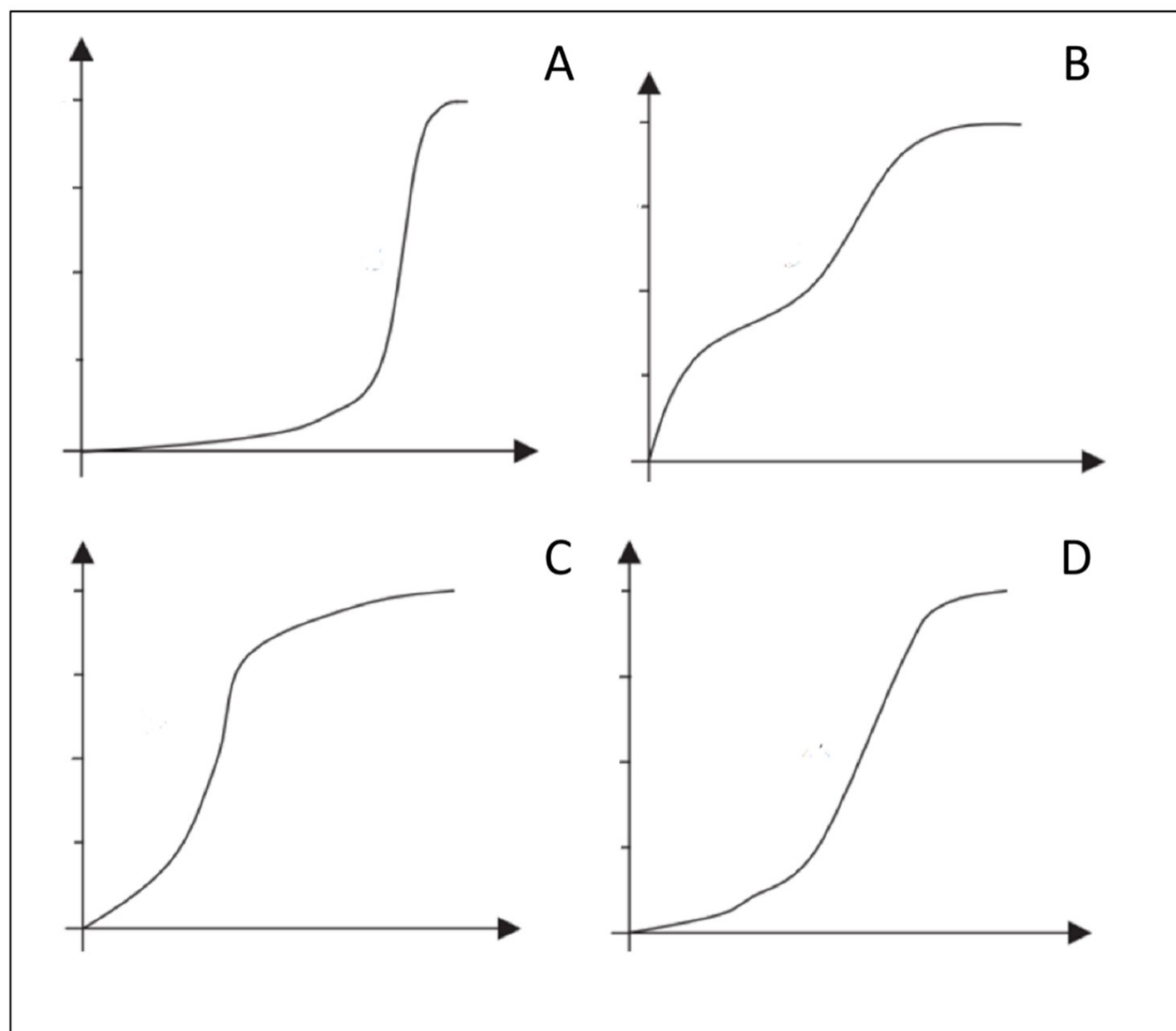
Answer: 100 pupils
(1 mark)

b) Make 2 comparisons between the distribution of the amount of homework time spent by year 10 and year 11 pupils.

- Both year 10 and 11 pupils spent a max of 2 hours 15 mins on homework.
 - Year 10's tend to spend longer on homework than Year 11's.
- Answer: _____
(3 marks)



Q7. Match each cumulative graph to the box plot by writing the appropriate letter next to each box plot.

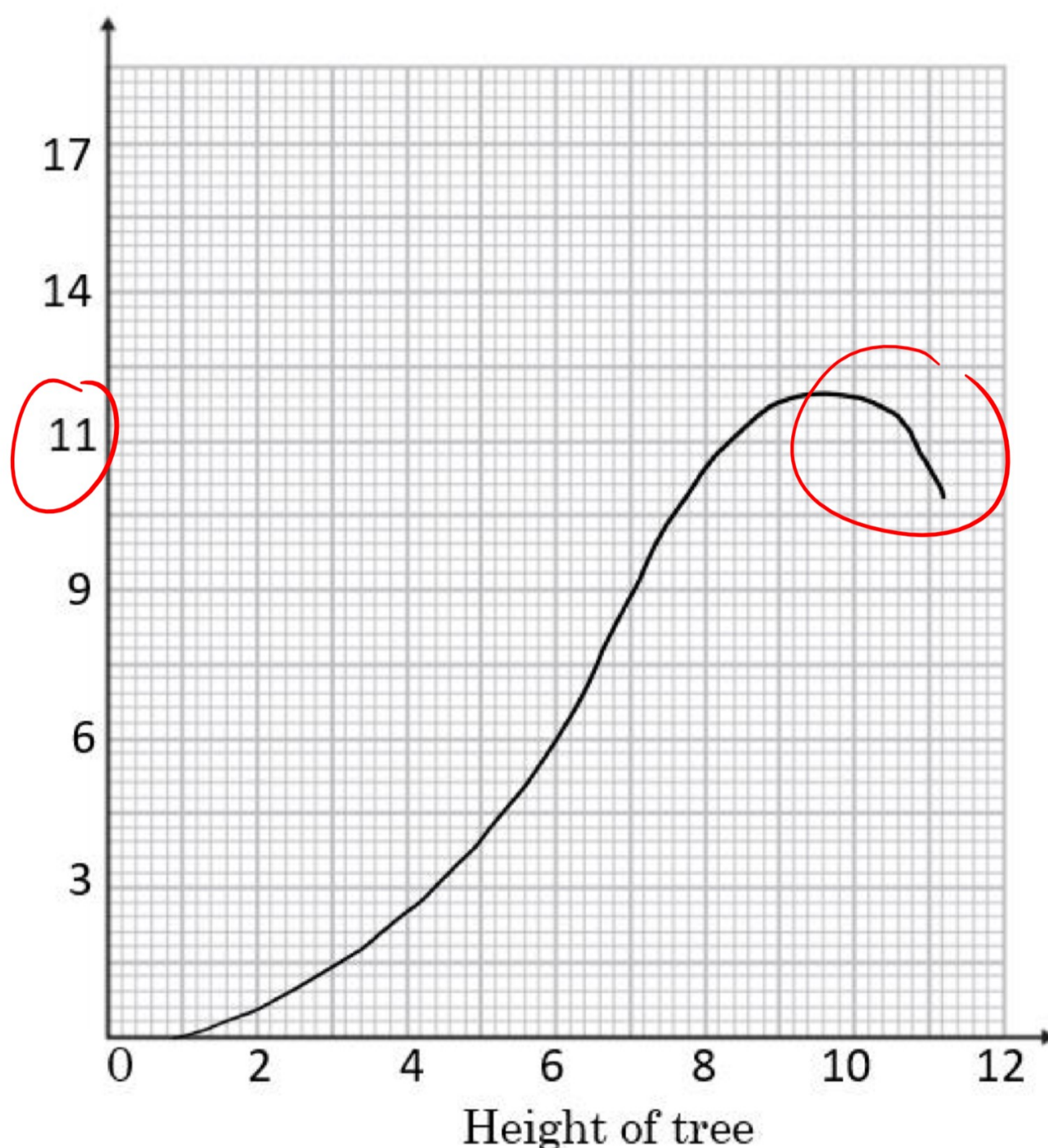


Answer: _____

(3 marks)



Q8. Roger has drawn the cumulative frequency graph to display the heights of trees in the local woodland. Identify three mistakes he has made.



- Vertical scale not equal increments
- The graph decreases which makes no sense for cumulative frequency.
- The height of tree label needs units.

Answer: _____

(3 marks)