Name: _____

GCSE (1 – 9)

Cumulative Frequency

Instructions

• Use **black** ink or ball-point pen.
• Answer all questions.
• Answer the questions in the spaces provided
– *there may be more space than you need.*
• Diagrams are **NOT** accurately drawn, unless otherwise indicated.
• You must **show all your working out.**

Information

• 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

1 The cumulative frequency table shows the height, in cm, of some tomato plants.

Height	Cumulative Frequency
$140 < h \leqslant 150$	7
$140 < h \leqslant 160$	17
$140 < h \leqslant 170$	32
$140 < h \leqslant 180$	51
$140 < h \leqslant 190$	57
$140 < h \leqslant 200$	60

(a) On the grid, plot a cumulative frequency graph for this information.
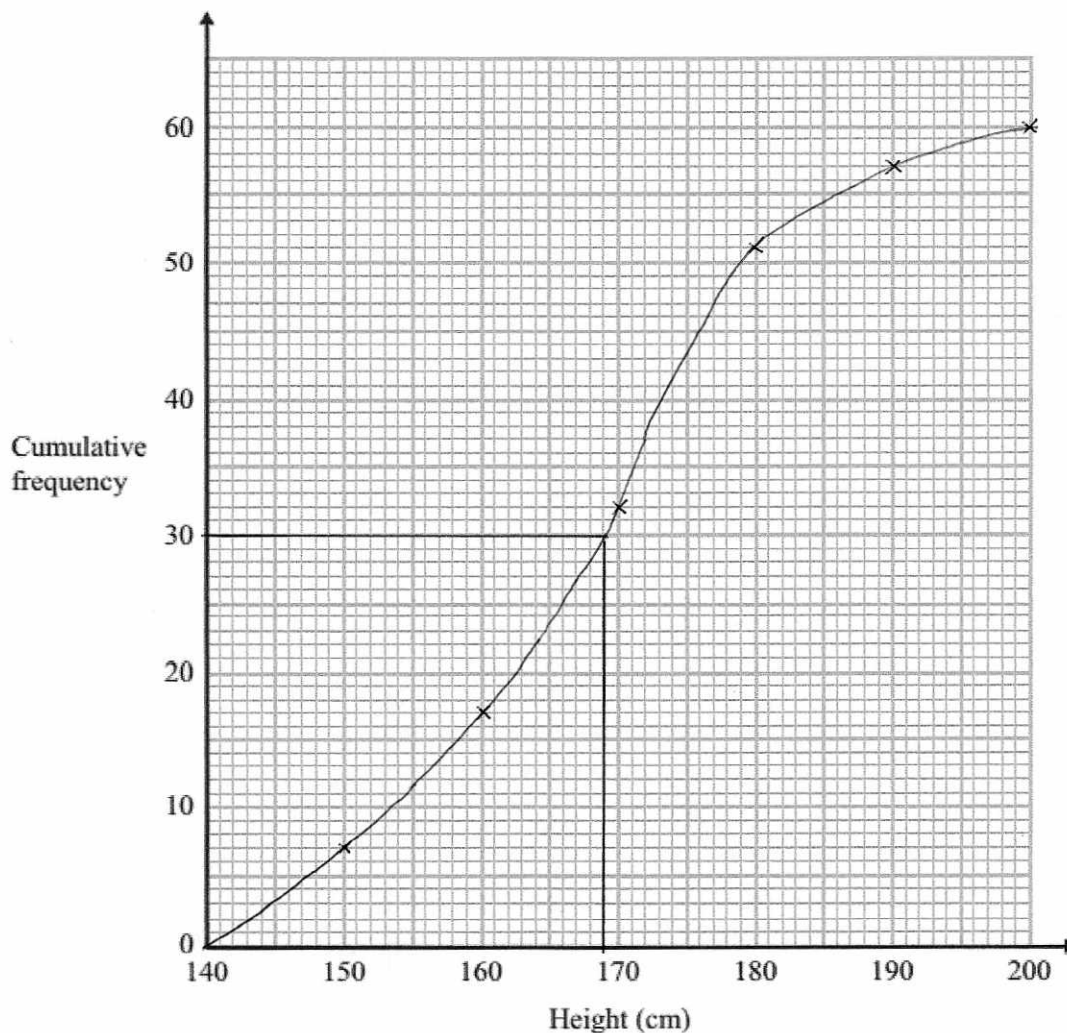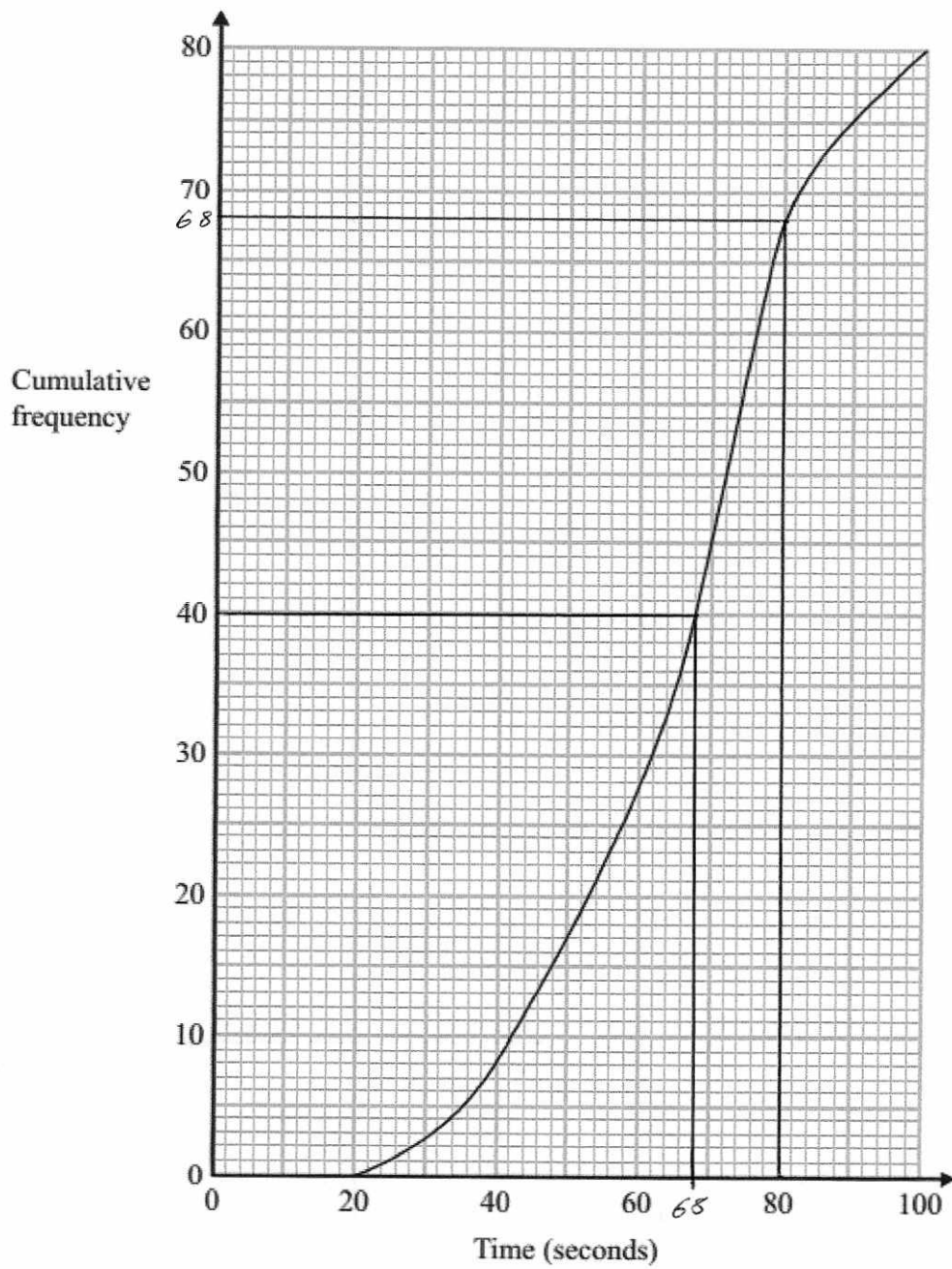

(2)

(b) Find the median height.

~~an estimate for~~ e

...........169.......cm

$168 - 169$ (1)

(Total for question 1 is 3 marks)

2 The cumulative frequency graph gives some information the times it took people to complete a challenge.

(a) Find the median time.

........68 seconds........

(1)

(b) Find the number of people who took longer then 80 seconds to complete the challenge.

$$80 - 68 = 12$$

........12........

(1)

(Total for question 2 is 2 marks)

3 The frequency table shows the weight, in kg, of some cats.

Weight (kg)	Frequency
$0 < w \leqslant 1$	8
$1 < w \leqslant 2$	10
$2 < w \leqslant 3$	21
$3 < w \leqslant 4$	19
$4 < w \leqslant 5$	13
$5 < w \leqslant 6$	9

(b) Complete the cumulative frequency table

(1)

Weight (kg)	Cumulative Frequency
$0 < w \leqslant 1$	8
$0 < w \leqslant 2$	18
$0 < w \leqslant 3$	39
$0 < w \leqslant 4$	58
$0 < w \leqslant 5$	71
$0 < w \leqslant 6$	80

(b) On the grid opposite draw a cumulative frequency graph for this information.

(2)

(c) Use your cumulative frequency graph to find an estimate for the interquartile range.

$$4.1 - 2.1 = 2$$

..............2..............kg

$1.9 - 2.1$ (2)
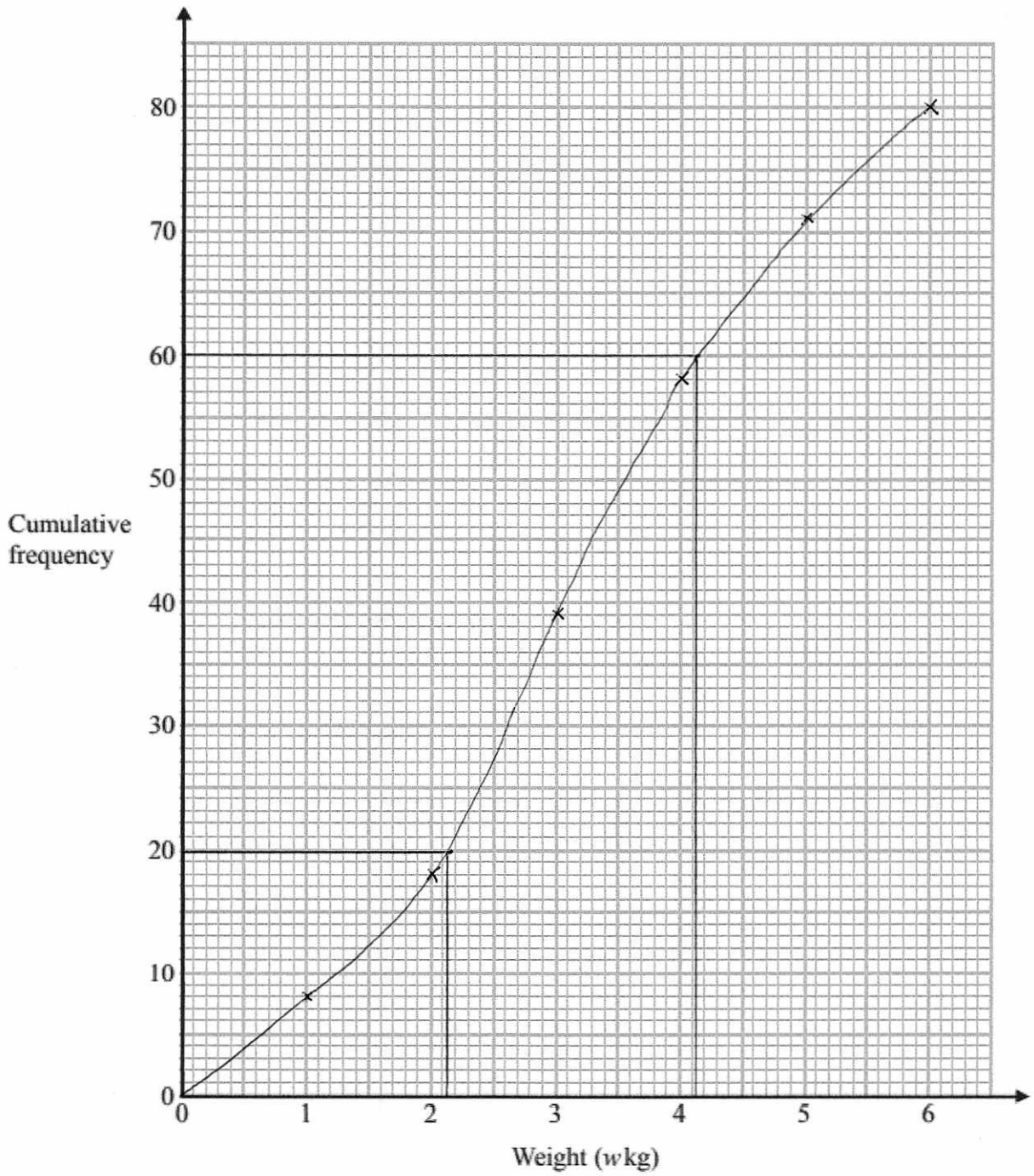
4 The frequency table shows the time taken for 100 people to travel to an event.

Time (minutes)	Frequency	C. F
$20 < t \leqslant 30$	9	9
$30 < t \leqslant 40$	16	25
$40 < t \leqslant 50$	20	45
$50 < t \leqslant 60$	29	74
$60 < t \leqslant 70$	15	89
$70 < t \leqslant 80$	11	100

(a) On the grid, plot a cumulative frequency graph for this information.

(2)
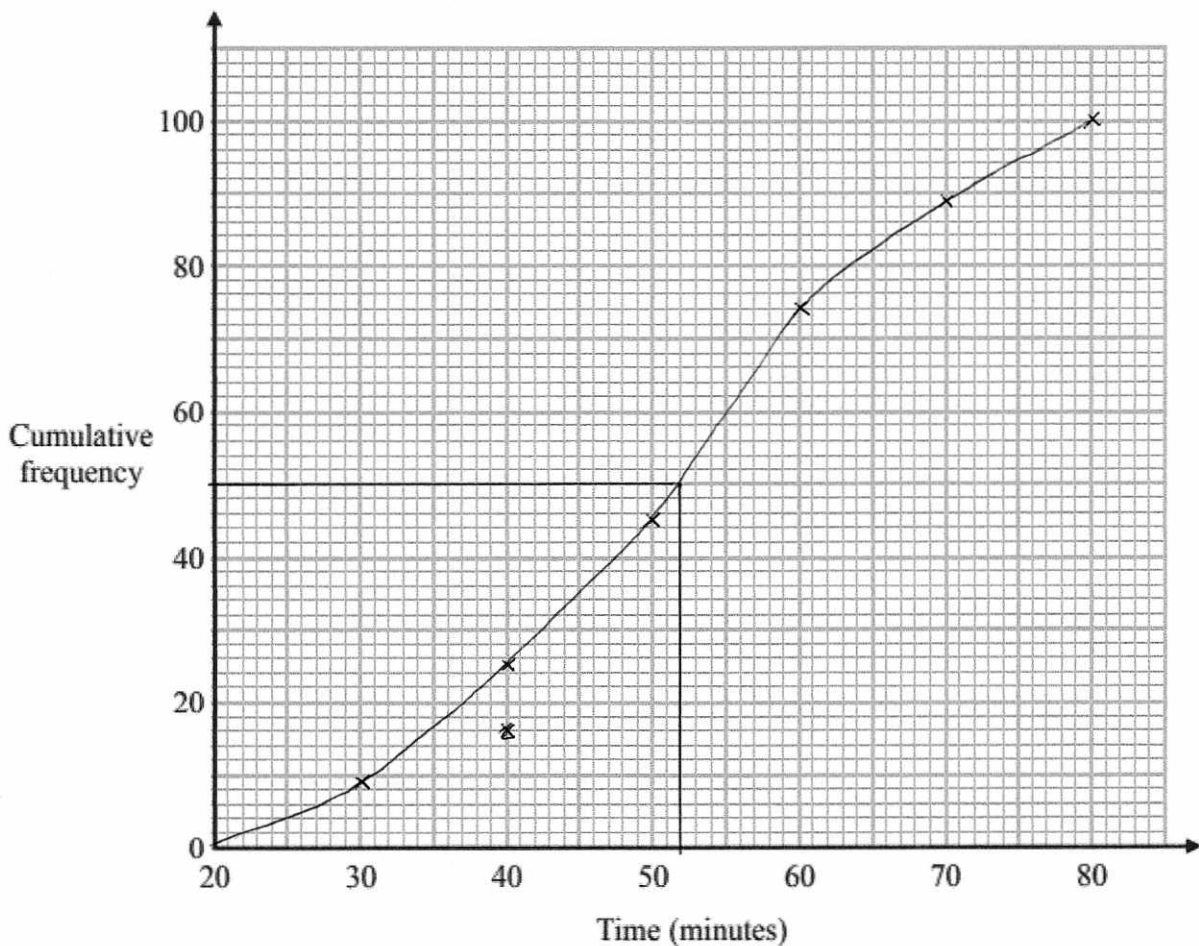
(b) Find an estimate for the median time taken.

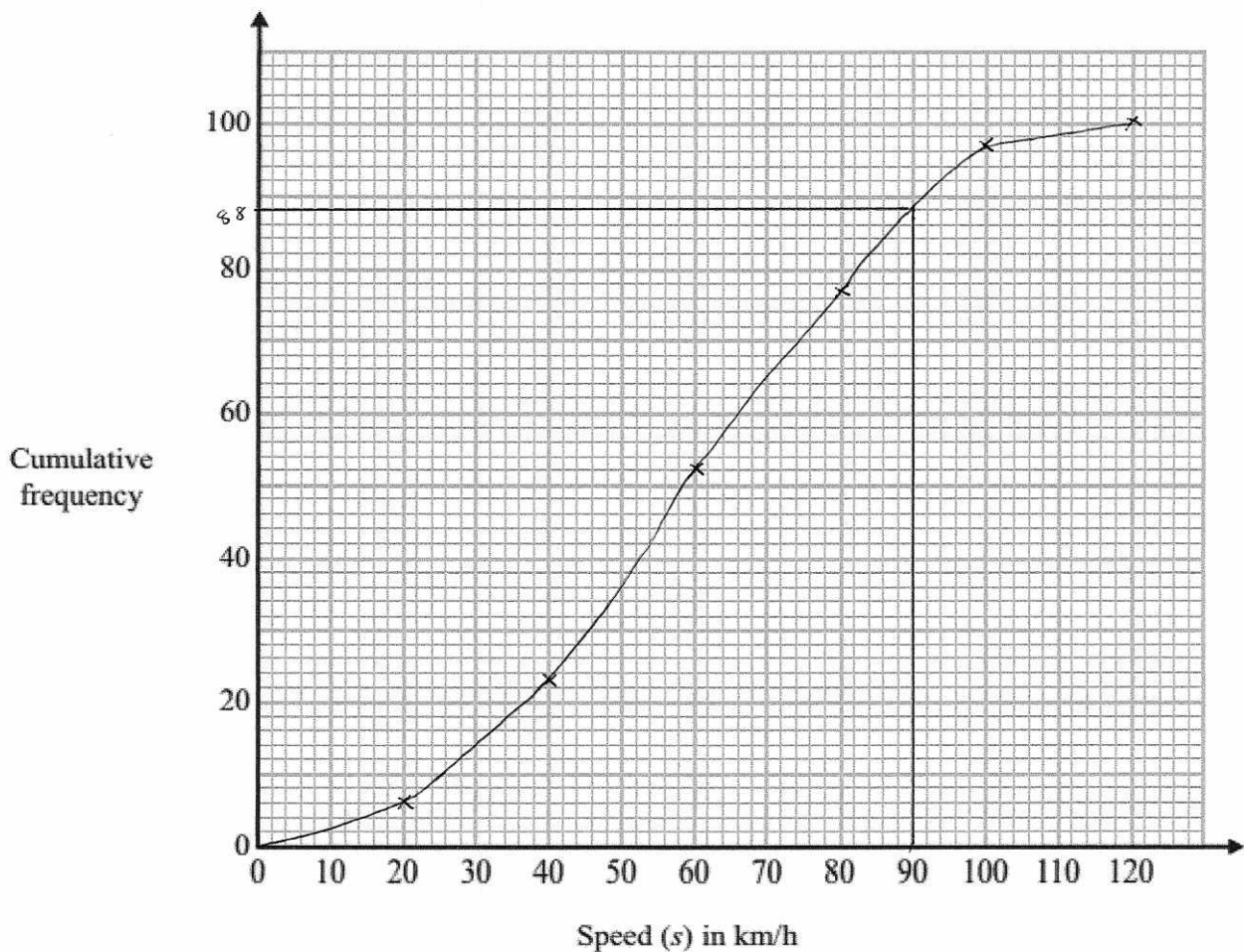.........52.........minutes

51 - 53   (1)

(Total for question 4 is 3 marks)

5 The frequency table shows the speeds of 100 cars.

Speed (km/h)	Frequency	C.F
$0 < s \leqslant 20$	6	6
$20 < s \leqslant 40$	17	23
$40 < s \leqslant 60$	29	52
$60 < s \leqslant 80$	25	77
$80 < s \leqslant 100$	20	97
$100 < s \leqslant 120$	3	100

(a) On the grid, plot a cumulative frequency graph for this information.

Cumulative frequency

Speed (s) in km/h

(2)

(b) Find an estimate for the number of cars travelling over 90 km/h.

$100 - 88 = 12$

........................12........................

$10 - 14$ (1)

(Total for question 5 is 3 marks)

6 The cumulative frequency graph gives some information about the weights of some objects.

Cumulative frequency
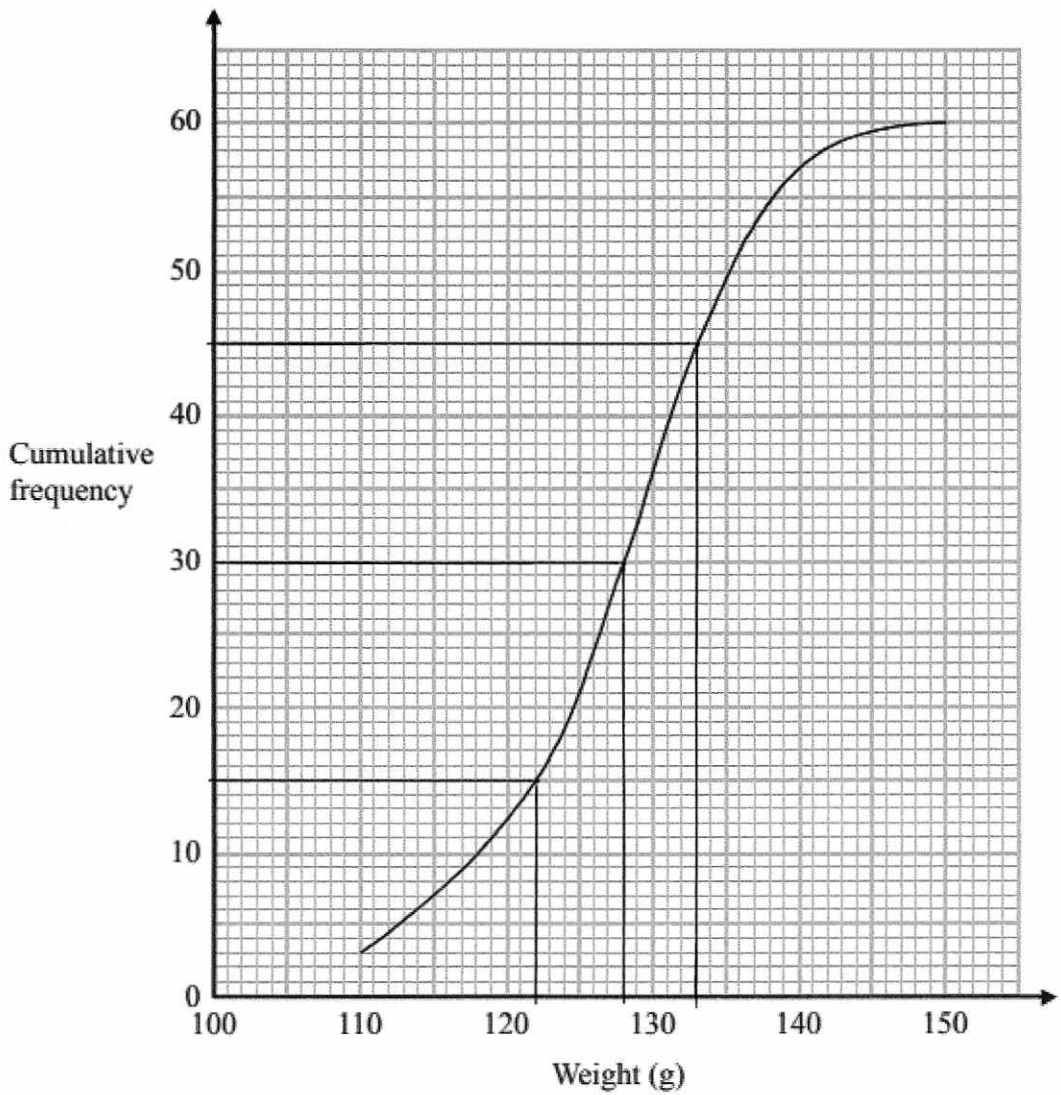
Weight (g)

(a) Find the median weight.

........128........g

(1)

(b) Find the inter quartile range.

133 − 122 = 11

........11........g

(2)

(Total for question 6 is 3 marks)