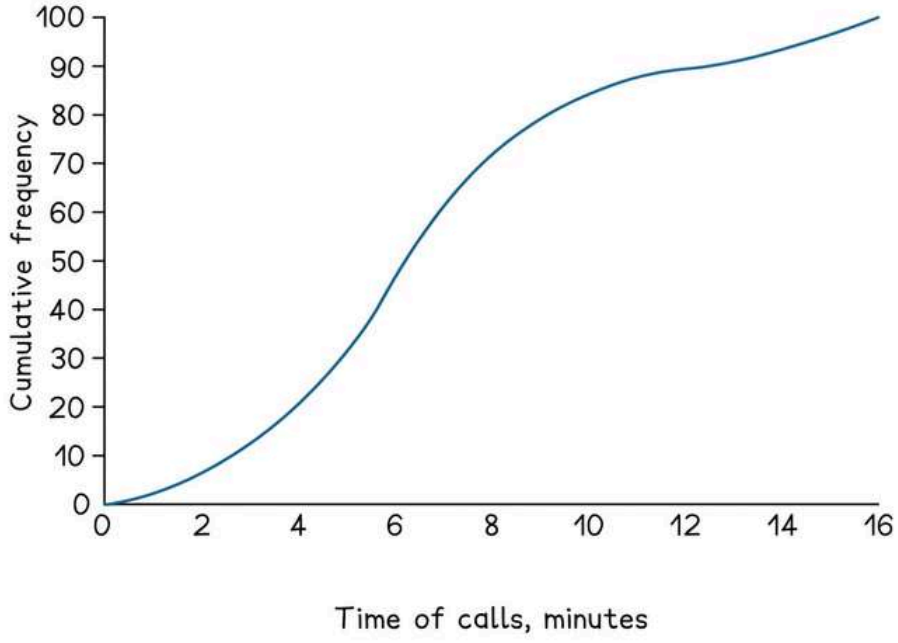
EDEXCEL IGCSE MATHEMATICS

UNIT 2 (MODULAR)

STATISTICS – CUMULATIVE FREQUENCY

QP & MS (2018 - 2025)



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EDEXCEL IGCSE MATHEMATICS MODULAR FOR MAY & OCT 2026

by Sir Muhammad Abdullah Shah

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1. June 2025 1HR/Q12

The table gives information about the ages of 80 people in a cinema.

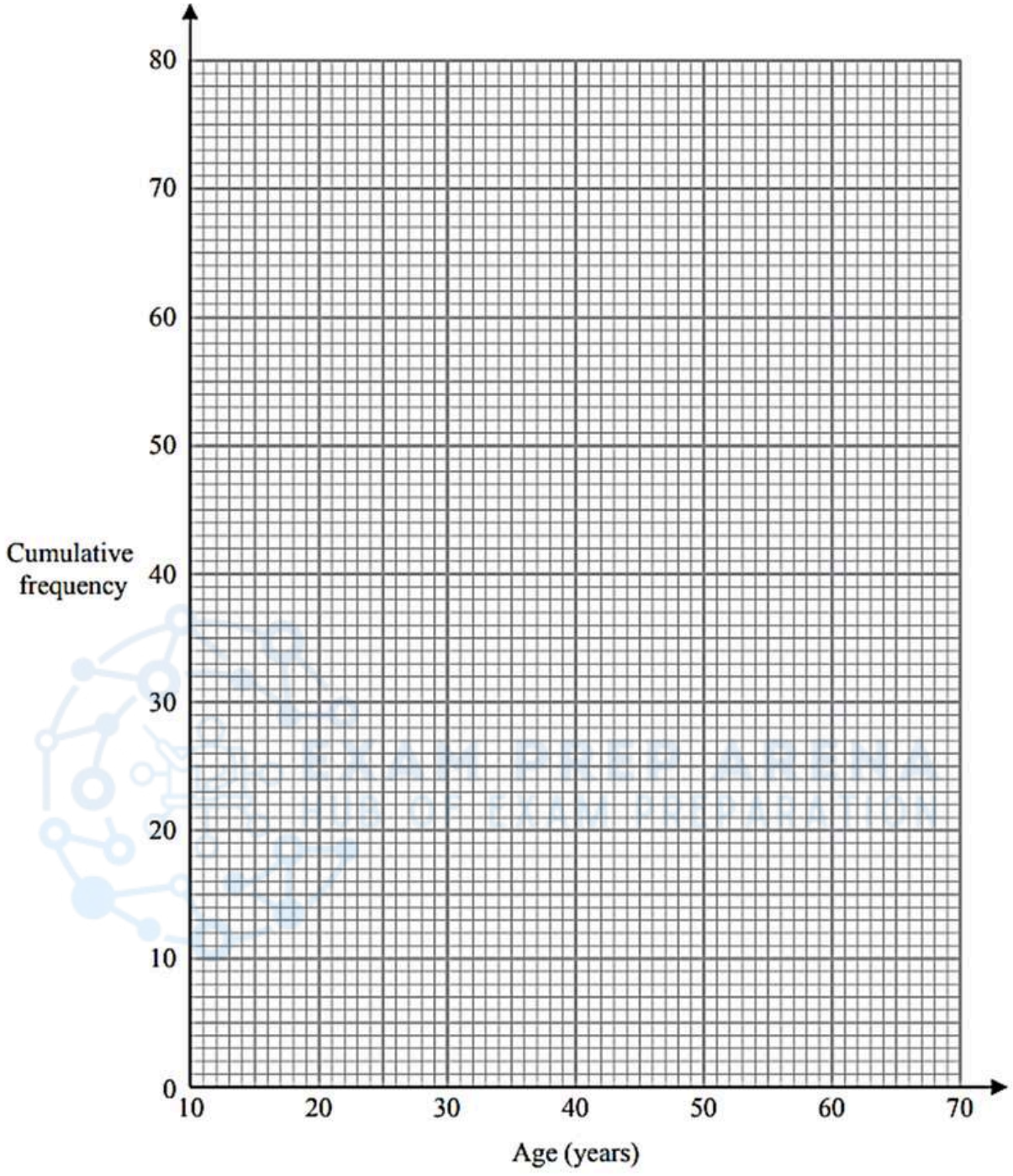
Age (n years)	Frequency
$10 < n \leqslant 20$	12
$20 < n \leqslant 30$	15
$30 < n \leqslant 40$	20
$40 < n \leqslant 50$	18
$50 < n \leqslant 60$	9
$60 < n \leqslant 70$	6

(a) Complete the cumulative frequency table.

Age (n years)	Cumulative frequency
$10 < n \leqslant 20$	
$10 < n \leqslant 30$	
$10 < n \leqslant 40$	
$10 < n \leqslant 50$	
$10 < n \leqslant 60$	
$10 < n \leqslant 70$	

(1)

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



(2)

(c) Use your graph to find an estimate for the percentage of the 80 people who are more than 46 years of age.
Give your answer correct to the nearest whole number.

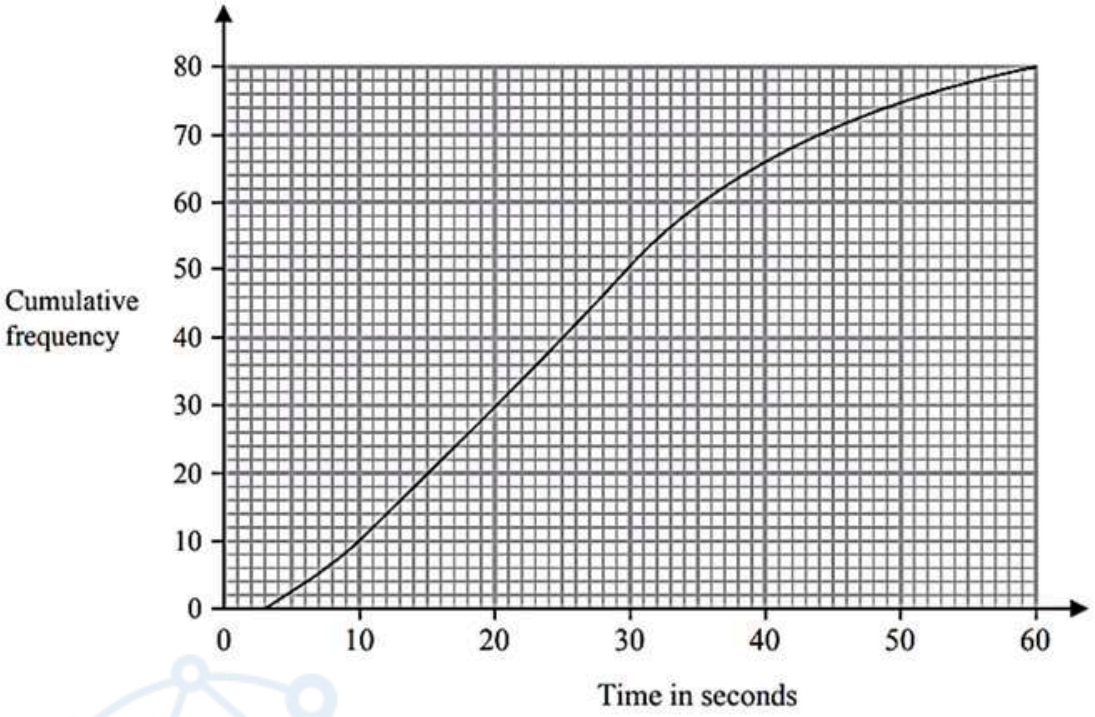
.....%

(3)

(Total for Question 12 is 6 marks)

2. Nov 2023 1H/Q 13

The cumulative frequency graph gives information about the times, in seconds, that 80 adults took to log in to an online bank.



(a) Find an estimate for the median time.

..... seconds
(1)

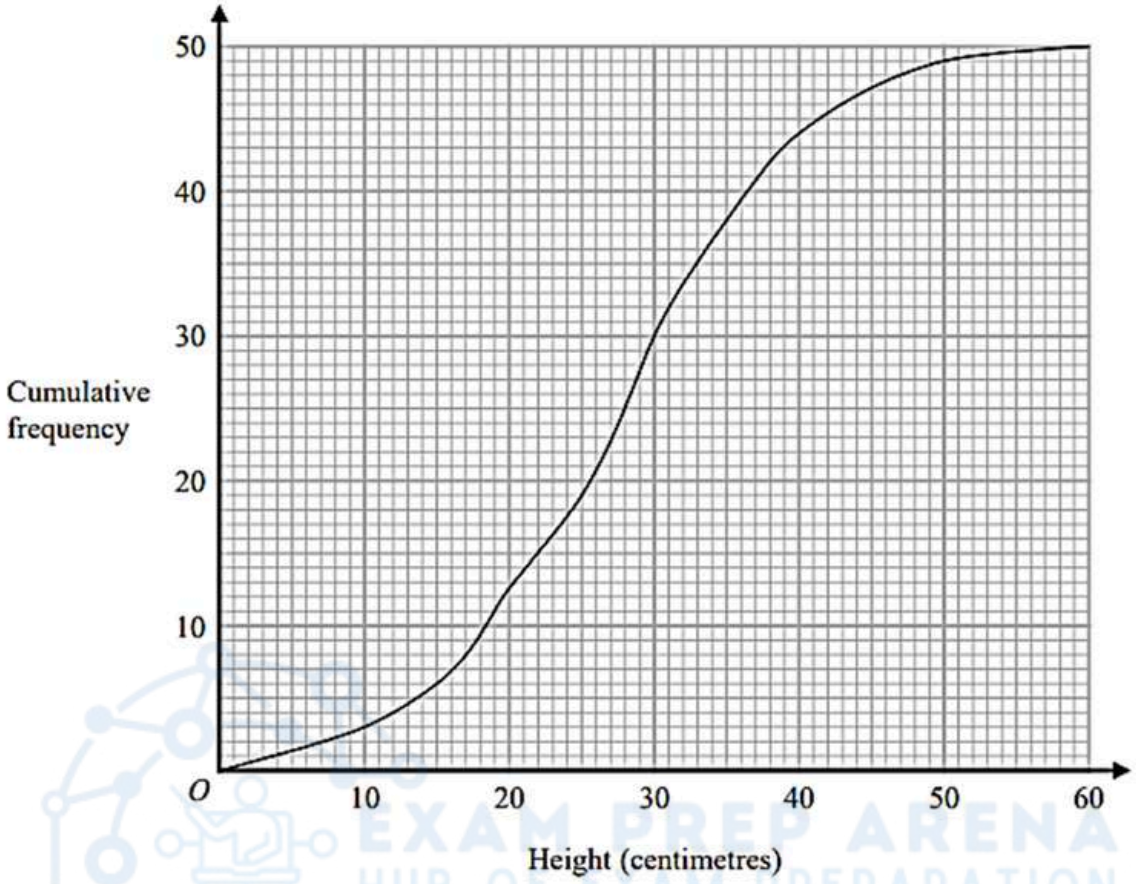
(b) Work out the percentage of these adults that took longer than 50 seconds to log in.
Show your working clearly.

..... %
(3)

(Total for Question 13 is 4 marks)

3. June 2023 1H/Q 12

The cumulative frequency graph shows information about the heights, in centimetres, of 50 plants in a flowerbed.



(a) Use the graph to find an estimate for the median height of these plants.

..... centimetres
(1)

(b) Use the graph to find the frequency for the class interval $30 < \text{Height} \leqslant 40$

.....
(1)

(c) Use the graph to find an estimate for the number of plants with a height greater than 35 centimetres.

.....
(2)

(Total for Question 12 is 4 marks)

4. June 2023 1HR/Q 14

The table gives information about the times taken by 80 people to run a race.

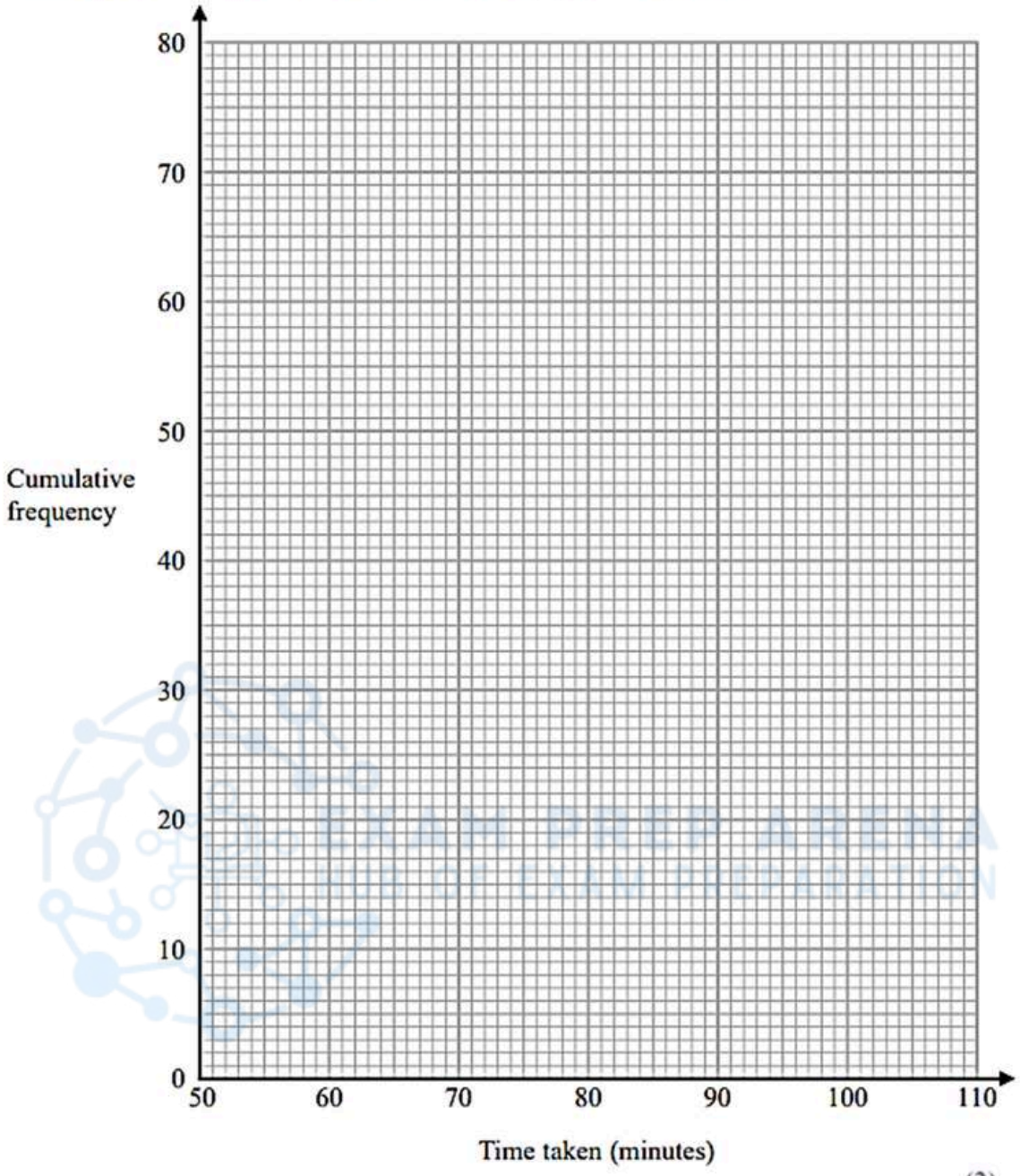
Time taken (t minutes)	Frequency
$50 < t \leqslant 60$	15
$60 < t \leqslant 70$	16
$70 < t \leqslant 80$	21
$80 < t \leqslant 90$	14
$90 < t \leqslant 100$	8
$100 < t \leqslant 110$	6

(a) Complete the cumulative frequency table.

Time taken (t minutes)	Cumulative frequency
$50 < t \leqslant 60$	
$50 < t \leqslant 70$	
$50 < t \leqslant 80$	
$50 < t \leqslant 90$	
$50 < t \leqslant 100$	
$50 < t \leqslant 110$	

(1)

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



(2)

(c) Use your graph to find an estimate for the median time taken.

..... minutes

(1)

(d) Use your graph to find an estimate for the interquartile range of the times taken.

..... minutes

(2)

(Total for Question 14 is 6 marks)

5. Jan 2023 1HR/Q 11

The table shows information about the times, in minutes, that 80 patients had to wait to see a doctor.

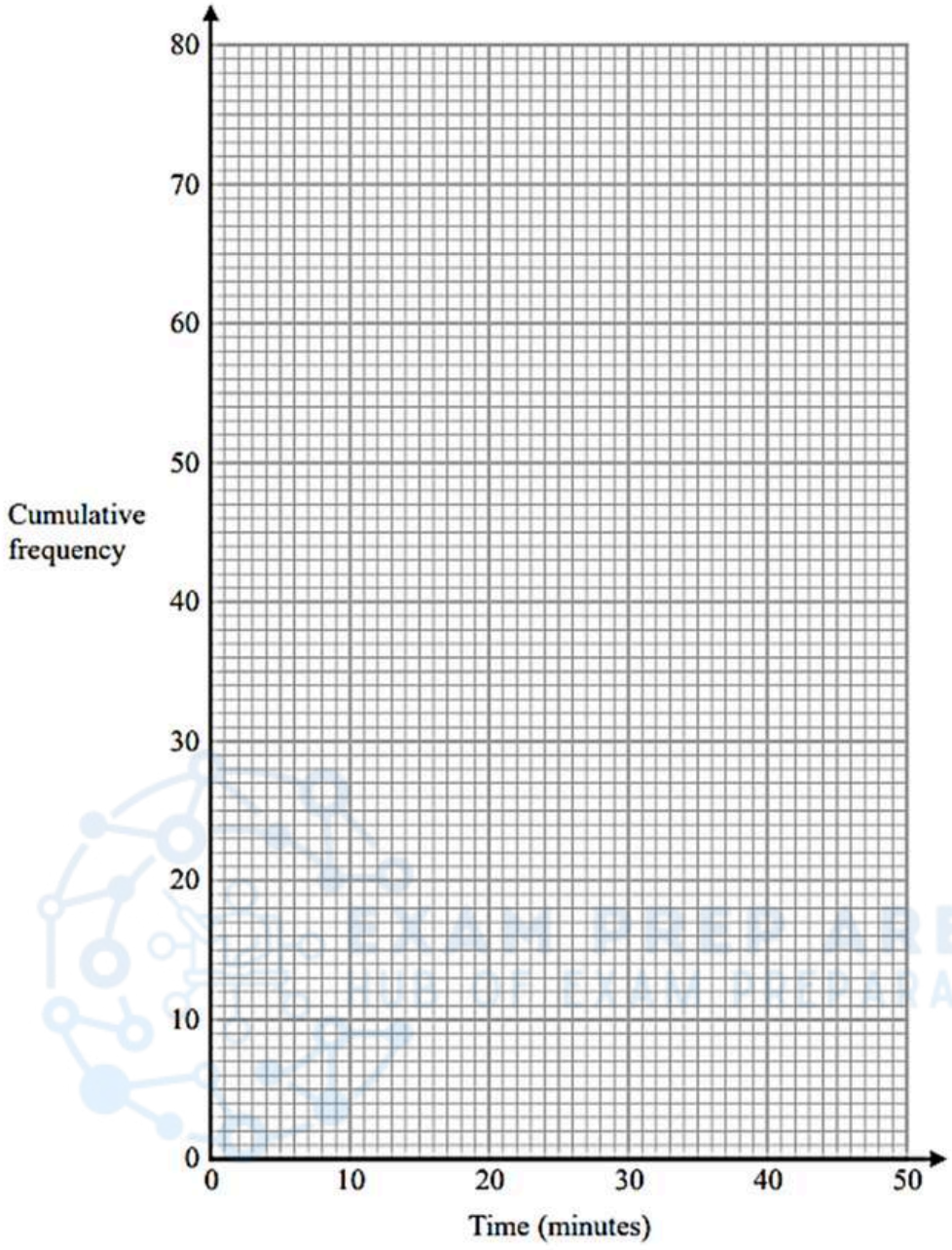
Time (W minutes)	Frequency
$0 < W \leqslant 10$	7
$10 < W \leqslant 20$	10
$20 < W \leqslant 30$	15
$30 < W \leqslant 40$	32
$40 < W \leqslant 50$	16

(a) Complete the cumulative frequency table below.

Time (W minutes)	Cumulative frequency
$0 < W \leqslant 10$	
$0 < W \leqslant 20$	
$0 < W \leqslant 30$	
$0 < W \leqslant 40$	
$0 < W \leqslant 50$	

(1)

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



(2)

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

..... minutes
(1)

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

..... minutes
(2)

(Total for Question 11 is 6 marks)

6. Jan 2022 1H/Q 12

The table gives information about the times, in minutes, taken by 80 customers to do their shopping in a supermarket.

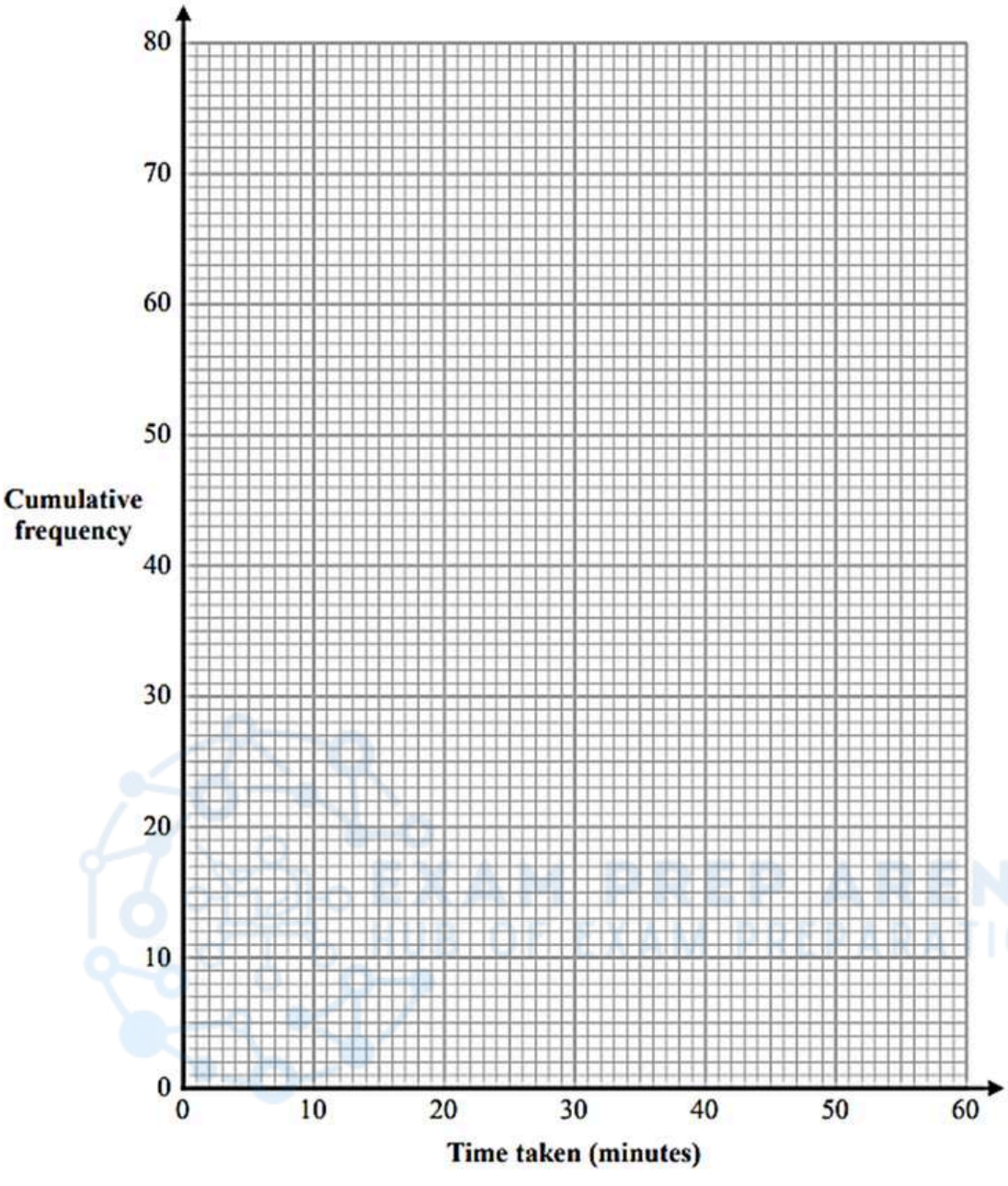
Time taken (t minutes)	Frequency
$0 < t \leqslant 10$	7
$10 < t \leqslant 20$	26
$20 < t \leqslant 30$	24
$30 < t \leqslant 40$	14
$40 < t \leqslant 50$	7
$50 < t \leqslant 60$	2

(a) Complete the cumulative frequency table.

Time taken (t minutes)	Cumulative frequency
$0 < t \leqslant 10$	
$0 < t \leqslant 20$	
$0 < t \leqslant 30$	
$0 < t \leqslant 40$	
$0 < t \leqslant 50$	
$0 < t \leqslant 60$	

(1)

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



(2)

(c) Use your graph to find an estimate for the median time taken.

..... minutes

(1)

One of the 80 customers is chosen at random.

(d) Use your graph to find an estimate for the probability that the time taken by this customer was more than 42 minutes.

.....

(2)

(Total for Question 12 is 6 marks)

7. Nov 2021 1H/Q 11

The table gives information about the times taken by 90 runners to complete a 10 km race.

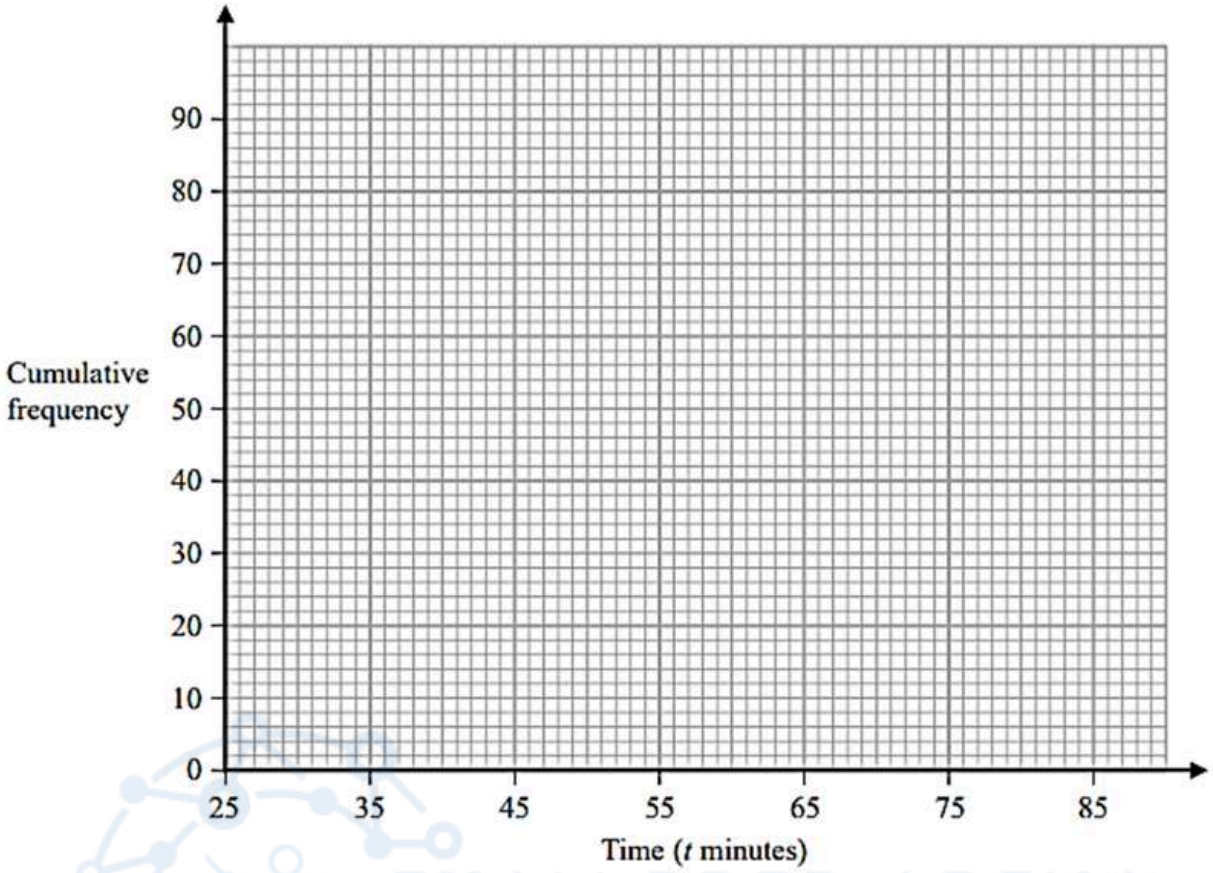
Time (t minutes)	Frequency
$25 < t \leqslant 35$	12
$35 < t \leqslant 45$	24
$45 < t \leqslant 55$	28
$55 < t \leqslant 65$	12
$65 < t \leqslant 75$	10
$75 < t \leqslant 85$	4

(a) Complete the cumulative frequency table.

Time (t minutes)	Cumulative frequency
$25 < t \leqslant 35$	12
$25 < t \leqslant 45$	
$25 < t \leqslant 55$	
$25 < t \leqslant 65$	
$25 < t \leqslant 75$	
$25 < t \leqslant 85$	

(1)

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



(2)

Any runner who completed the race in a time T minutes such that $42 < T \leqslant 52$ minutes was awarded a silver medal.

(c) Use your graph to find an estimate for the number of runners who were awarded a silver medal.

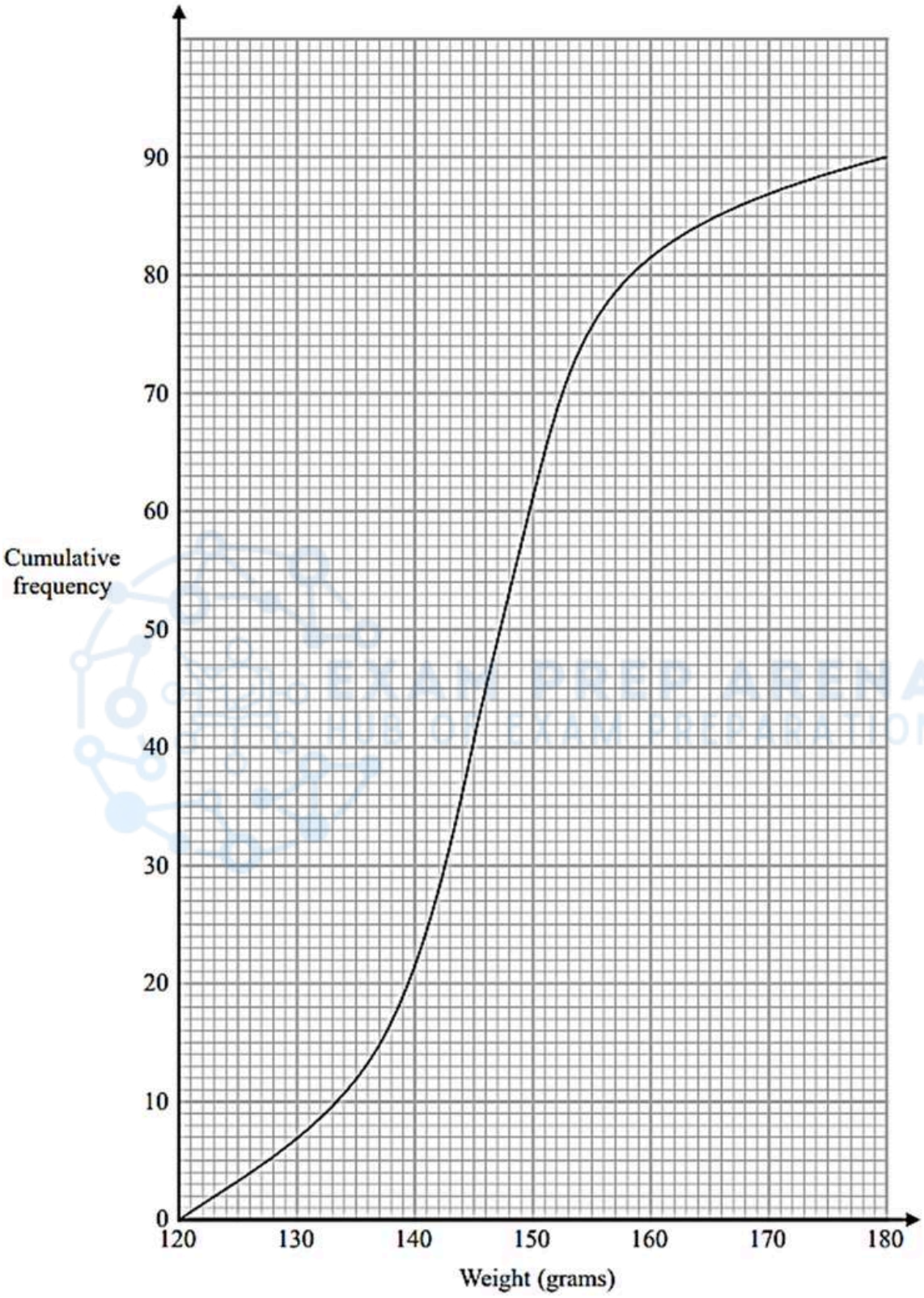
..... runners

(2)

(Total for Question 11 is 5 marks)

8. Jan 2021 1H/Q11

The cumulative frequency graph gives information about the weights, in grams, of 90 bags of sweets.



(a) Find an estimate for the median of the weights of these bags of sweets.

..... grams
(2)

Roberto sells the bags of sweets to raise money for charity.
Bags with a weight greater than d grams are labelled large bags and sold for 3.75 euros each bag.

The total amount of money he receives by selling all the large bags is 93.75 euros.

(b) Find the value of d.

$d =$ .....
(3)

(Total for Question 11 is 5 marks)

9. Jan 2021 1HR/Q11

The manager of a call centre asked the 120 people, who rang the call centre last week, how long they each waited before their call was answered.

The table gives information about their replies.

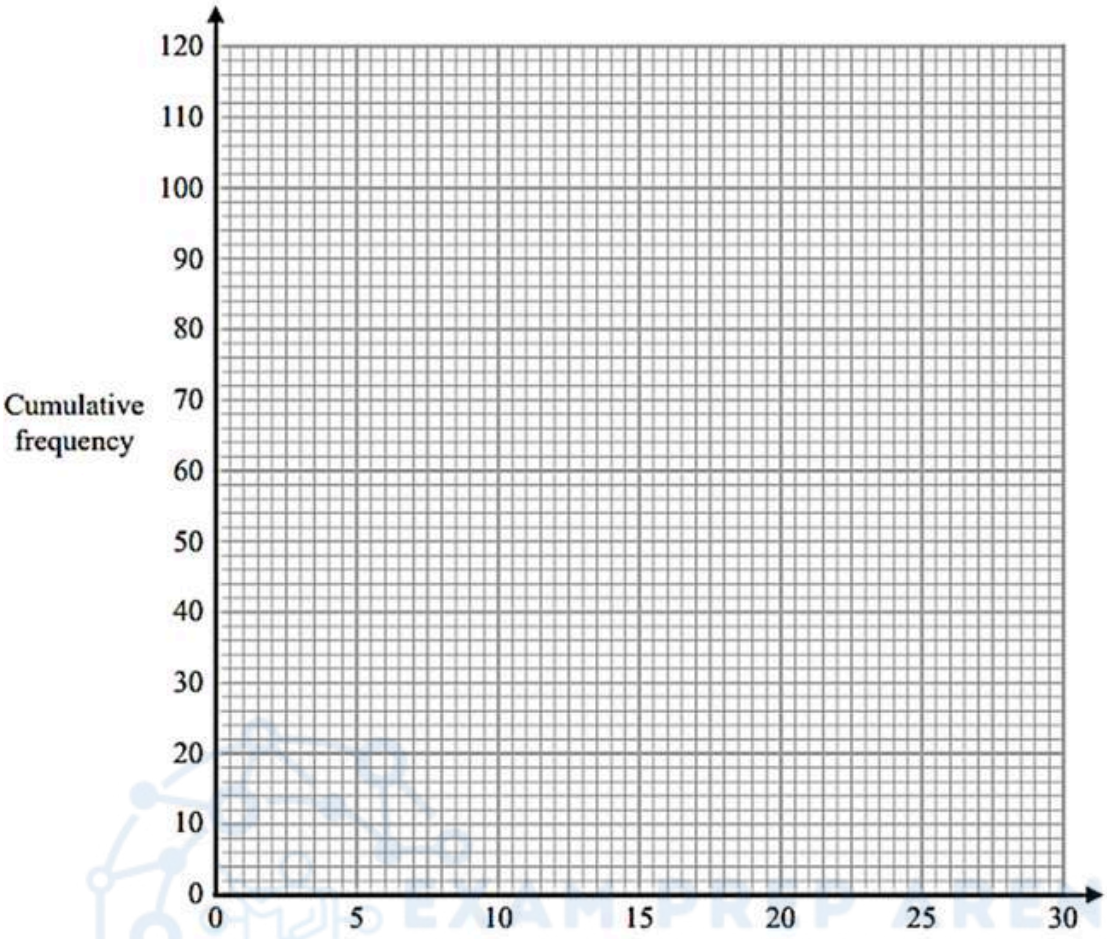
Time waited (t minutes)	Frequency
$0 < t \leqslant 5$	8
$5 < t \leqslant 10$	15
$10 < t \leqslant 15$	17
$15 < t \leqslant 20$	28
$20 < t \leqslant 25$	33
$25 < t \leqslant 30$	19

(a) Complete the cumulative frequency table.

Time waited (t minutes)	Cumulative frequency
$0 < t \leqslant 5$	
$0 < t \leqslant 10$	
$0 < t \leqslant 15$	
$0 < t \leqslant 20$	
$0 < t \leqslant 25$	
$0 < t \leqslant 30$	

(1)

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



(2)

(c) Use your graph to find an estimate for the median of the times waited.

..... minutes

(1)

(d) Using your graph, find an estimate for the percentage of the 120 people who said that they waited longer than 23 minutes before their call was answered.
Show your working clearly.

.....%

(2)

(Total for Question 11 is 6 marks)

10. Nov 2020 1HR/Q11

The frequency table gives information about the ages of the 80 people in a train carriage.

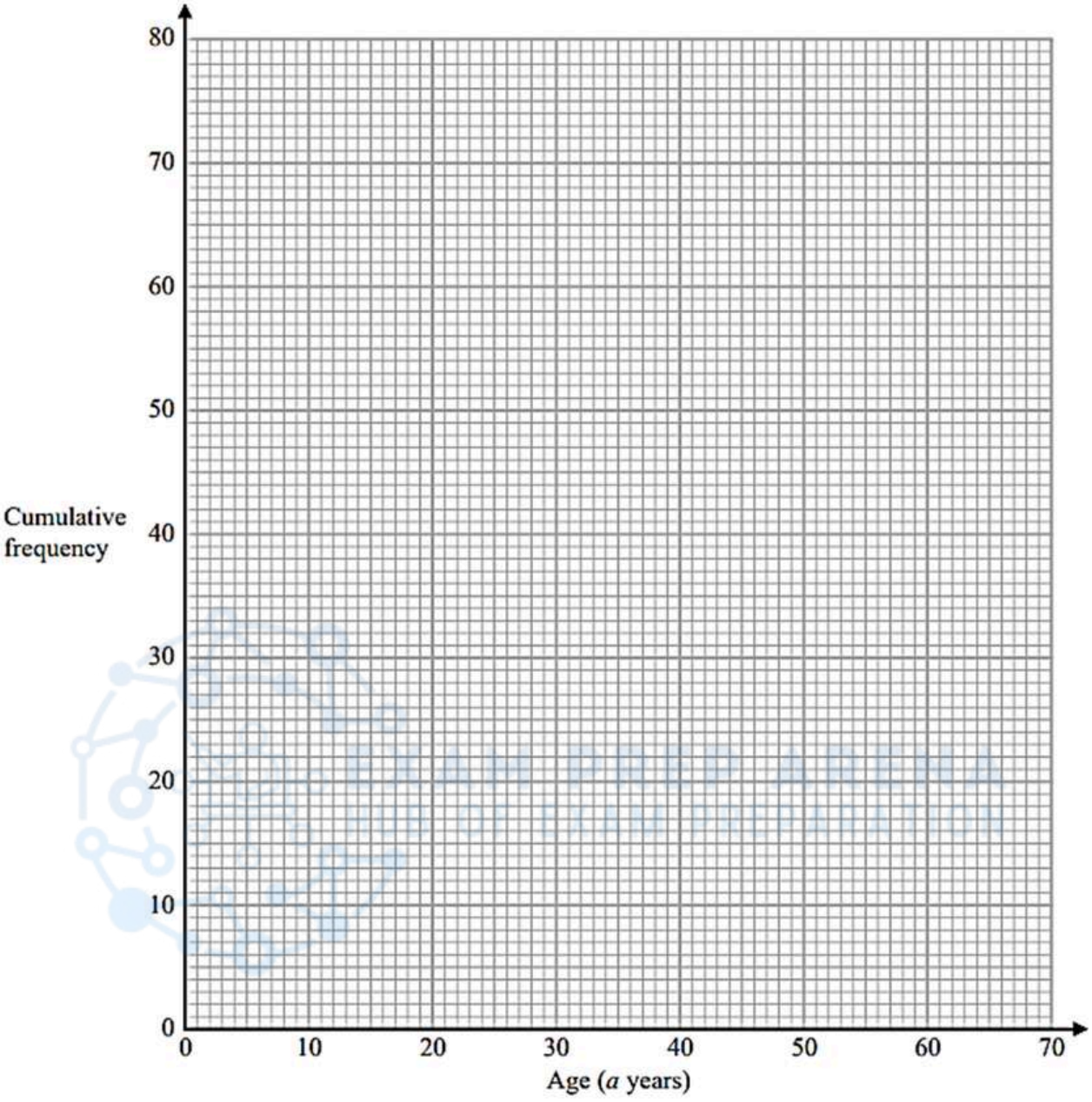
Age (a years)	Frequency
$0 < a \leqslant 20$	9
$20 < a \leqslant 30$	19
$30 < a \leqslant 40$	17
$40 < a \leqslant 50$	18
$50 < a \leqslant 60$	13
$60 < a \leqslant 70$	4

(a) Complete the cumulative frequency table.

Age (a years)	Cumulative frequency
$0 < a \leqslant 20$	
$0 < a \leqslant 30$	
$0 < a \leqslant 40$	
$0 < a \leqslant 50$	
$0 < a \leqslant 60$	
$0 < a \leqslant 70$	

(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 age of the people in the train carriage.

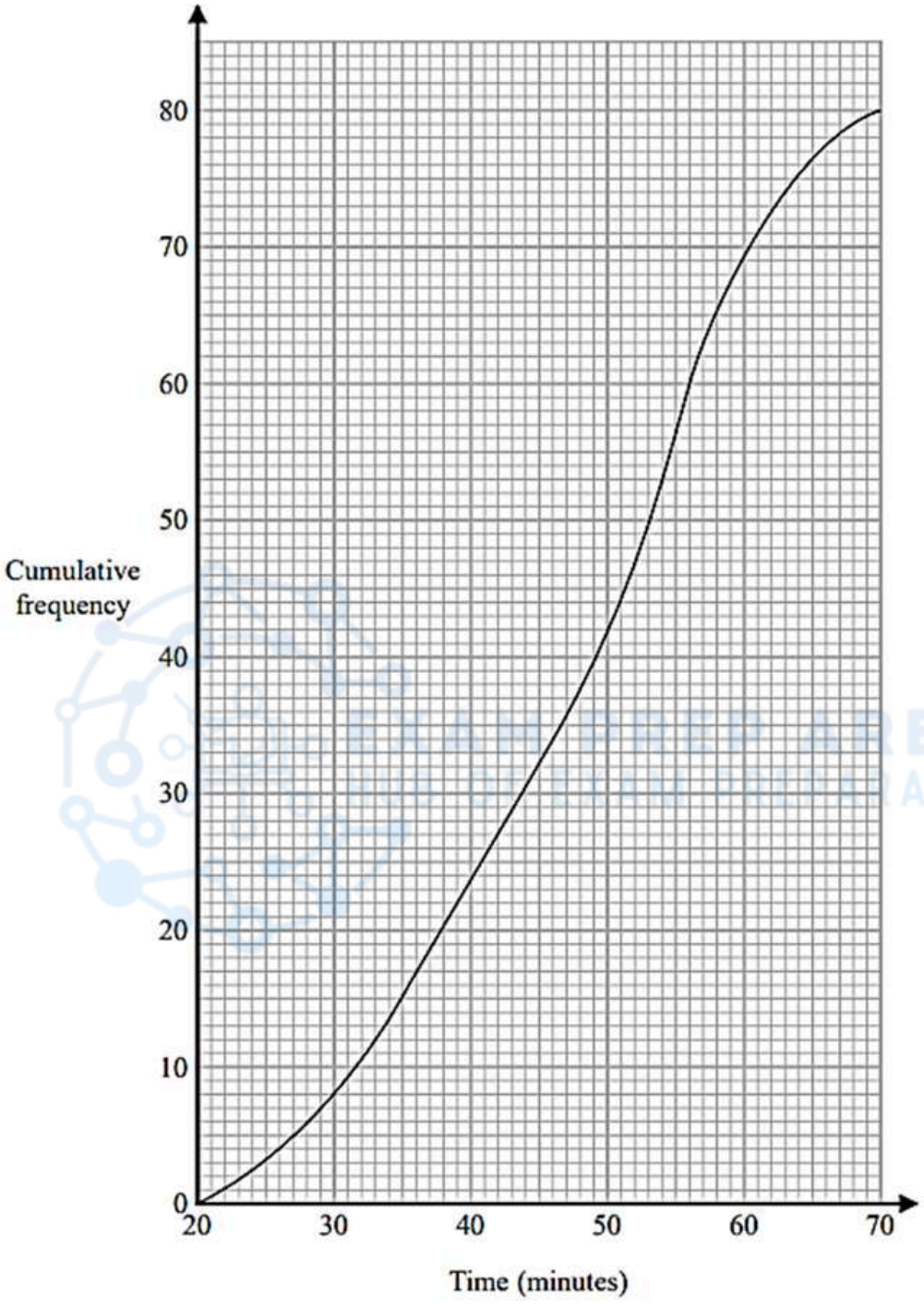
..... years

(2)

(Total for Question 11 is 5 marks)

11. Jan 2020 1H/Q12

A total of 80 men and women took part in a race.
The cumulative frequency graph gives information about the times, in minutes, they took for the race.



(a) Use the graph to find an estimate for the interquartile range.

..... minutes
(2)

60% of the men took 50 minutes or less for the race.
No women took 50 minutes or less for the race.

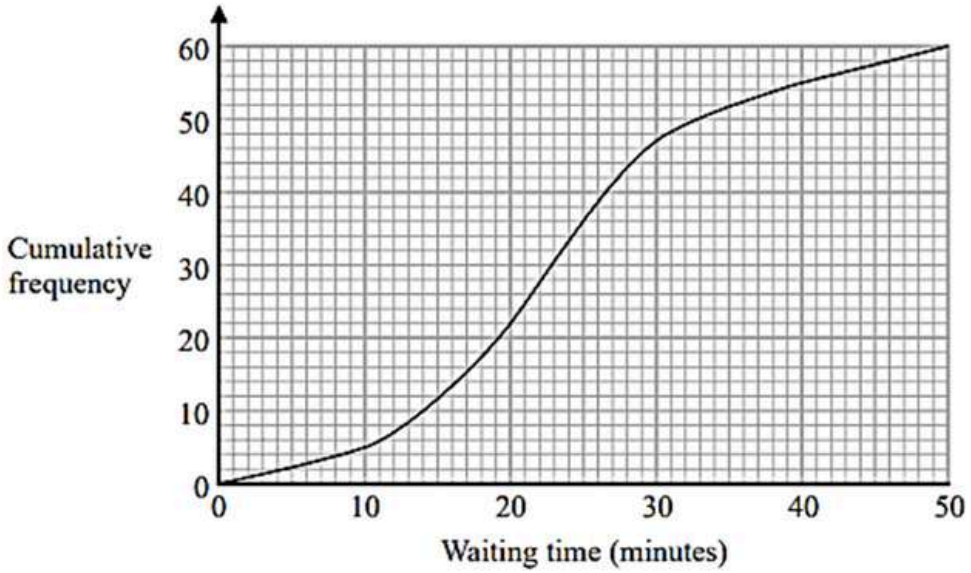
(b) Work out an estimate for the number of men who took part in the race.

.....
(3)

(Total for Question 12 is 5 marks)

12. Jan 2020 1HR/Q12

The cumulative frequency graph gives information about the waiting times, in minutes, of people with appointments at Hospital A.



(a) Use the graph to find an estimate of the median waiting time at Hospital A.

..... minutes
(1)

(b) Use the graph to find an estimate of the interquartile range of the waiting times at Hospital A.

..... minutes
(2)

At a different hospital, Hospital B, the median waiting time is 28 minutes and the interquartile range of the waiting times is 19 minutes.

(c) Compare the waiting times at Hospital A with the waiting times at Hospital B.

.....

.....

.....

.....
(2)

(Total for Question 12 is 5 marks)

13. Jan 2019 1H/Q 9

The table shows information about the speeds of 60 cycles.

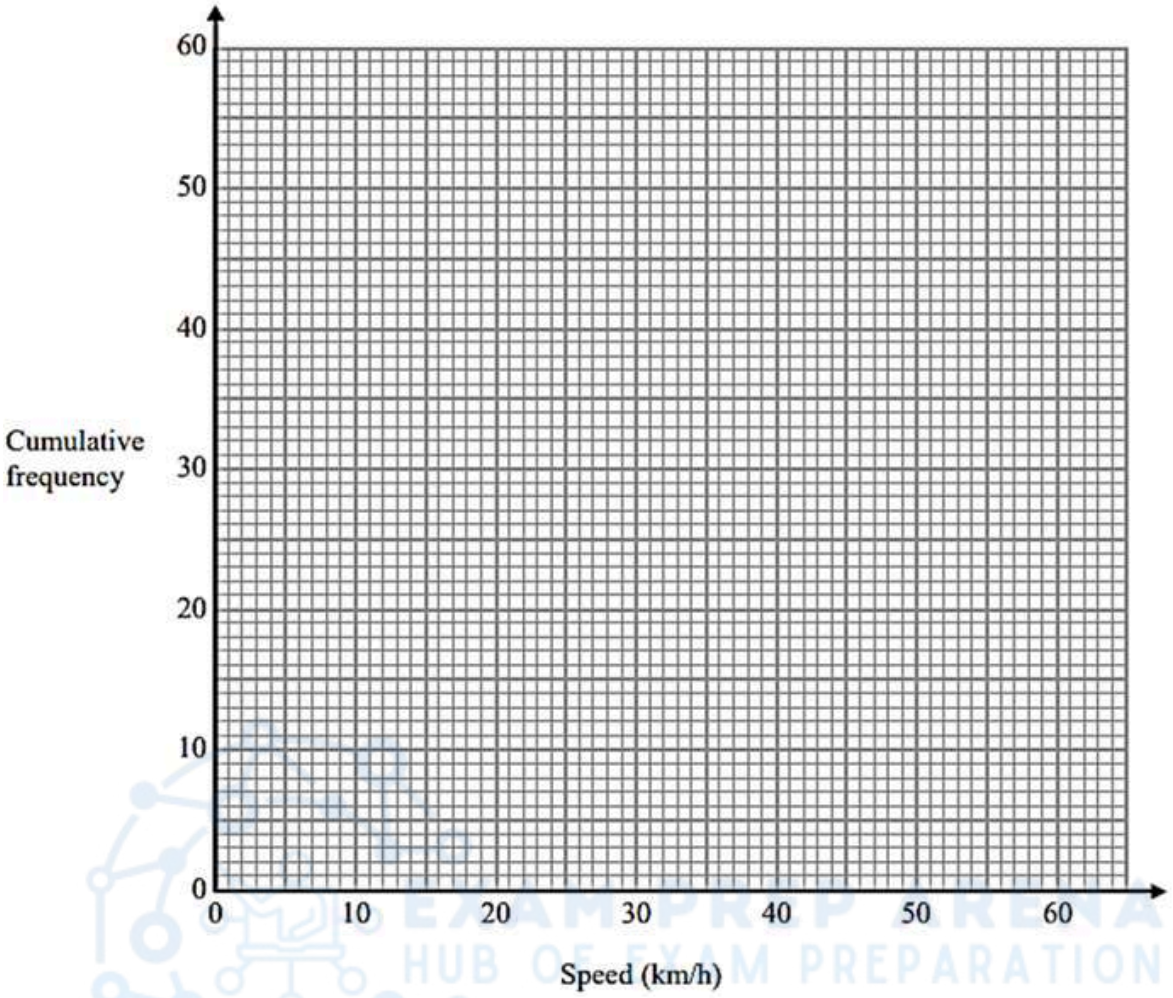
Speed (s km/h)	Frequency
$0 < s \leqslant 10$	3
$10 < s \leqslant 20$	16
$20 < s \leqslant 30$	24
$30 < s \leqslant 40$	10
$40 < s \leqslant 50$	5
$50 < s \leqslant 60$	2

(a) Complete the cumulative frequency table.

Speed (s km/h)	Cumulative frequency
$0 < s \leqslant 10$	
$0 < s \leqslant 20$	
$0 < s \leqslant 30$	
$0 < s \leqslant 40$	
$0 < s \leqslant 50$	
$0 < s \leqslant 60$	

(1)

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



(2)

(c) Use your graph to find an estimate for the interquartile range of the speeds.

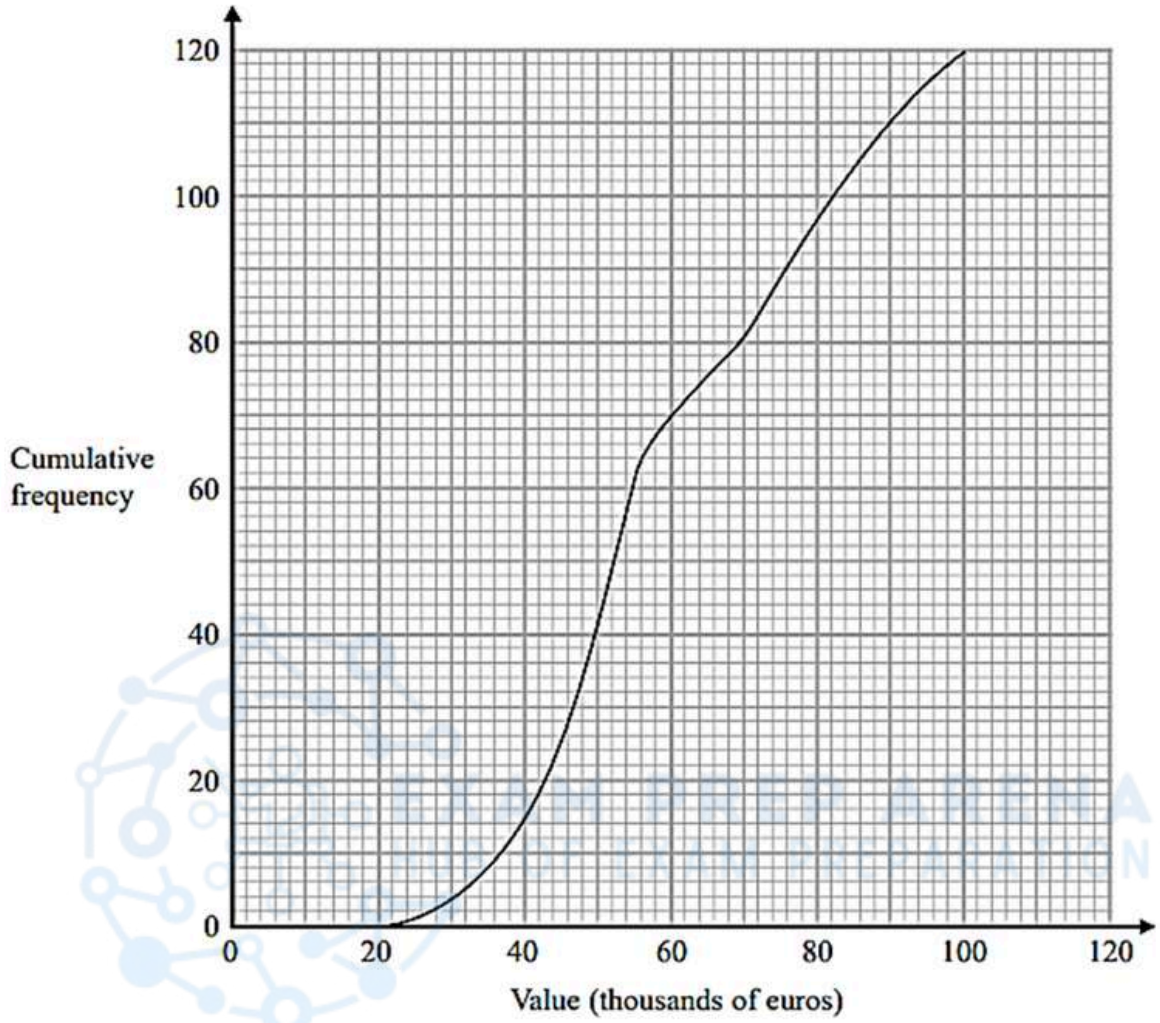
km/h

(2)

(Total for Question 9 is 5 marks)

14. Jan 2019 1HR/Q 14

The cumulative frequency diagram gives information about the values, in thousands of euros, of 120 apartments in 2015



(a) Find an estimate for the number of these apartments with a value of 80 thousand euros or less in 2015

.....

(1)

The table gives information about the values, in thousands of euros, of the same 120 apartments in 2018

Value in thousands of euros (v)	Cumulative frequency
$0 < v \leqslant 20$	0
$0 < v \leqslant 40$	15
$0 < v \leqslant 60$	44
$0 < v \leqslant 80$	85
$0 < v \leqslant 100$	102
$0 < v \leqslant 120$	120

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

(2)

(c) Find an estimate for the increase in the median value for these apartments from 2015 to 2018

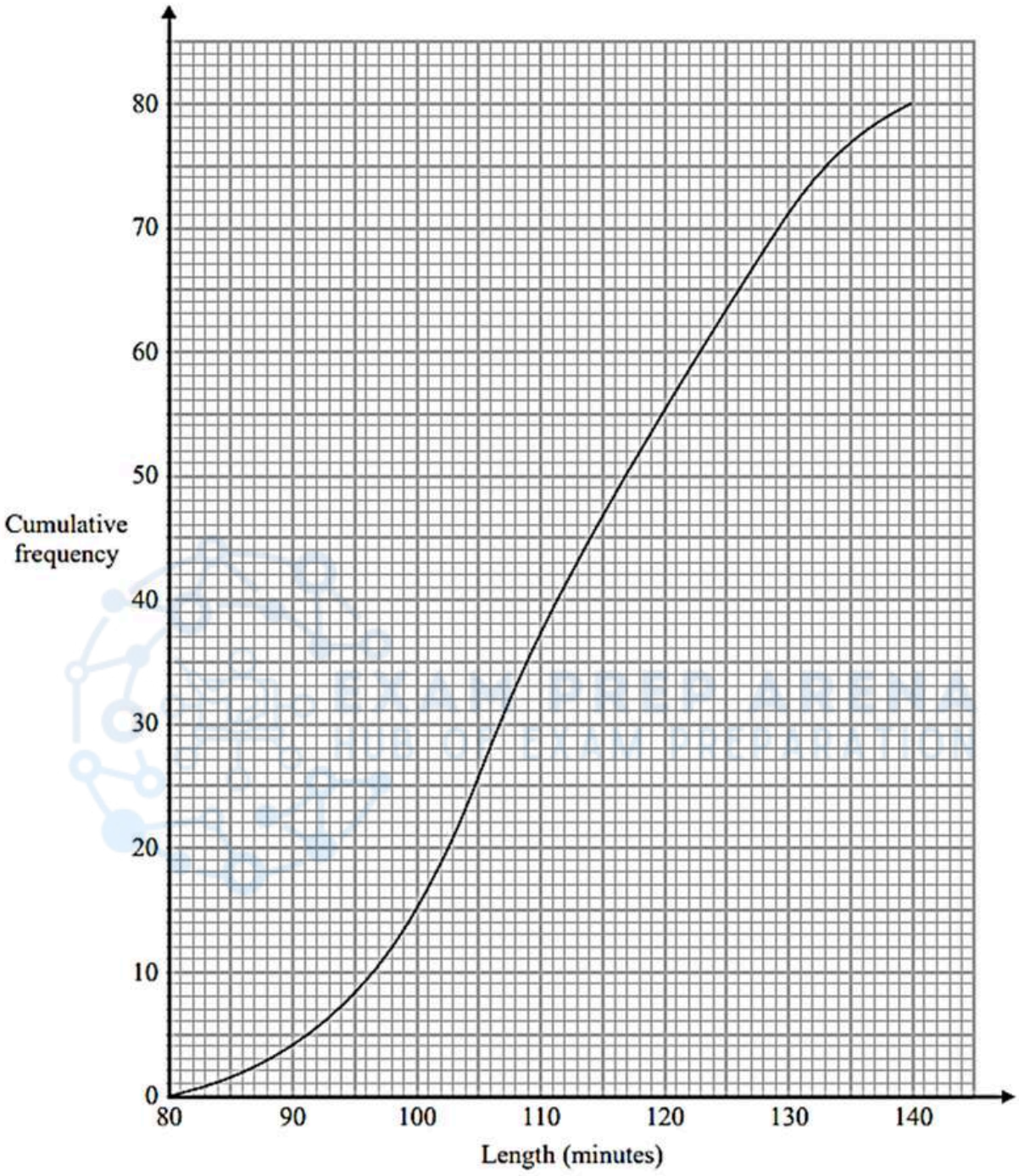
.....thousand euros

(2)

(Total for Question 14 is 5 marks)

15. June 2018 1H/Q 10

The cumulative frequency graph shows information about the length, in minutes, of each of 80 films.



(a) Use the graph to find an estimate for the interquartile range.

..... minutes
(2)

Clare says,

"More than 35% of these films are over 120 minutes long."

(b) Is Clare correct?
Give a reason for your answer.

.....

.....

(3)

(Total for Question 10 is 5 marks)

16. Specimen 1H/Q 11

Expand and simplify $(x + 5)(x - 3)(x + 3)$

.....

(Total for Question 11 is 3 marks)

(a) Use the graph to find an estimate for the interquartile range.

..... minutes

(2)

MARKING SCHEME

1. June 2025 1HR/Q12

12	(a)		12, 27, 47, 65, 74, 80	1	B1	
	(b)			2	M1	ft from table for at least 5 points plotted correctly at end of interval **or** ft from sensible table (ft from a table with only one arithmetic error that may be continued through table) for all 6 points plotted consistently within each interval in the **freq table** at the correct height
		Correct answer scores full marks (unless from obvious incorrect working)	correct cf graph		A1	accept curve or line segments accept curve that is not joined at (10, 0)
	(c)			3	M1ft	a line up from 46 to their graph **and** a line across to the vertical axis **or** a mark on the curve at the correct point **and** a mark on the vertical axis at the correct point **or** a reading of 57 - 59 from their cf graph **or** a value of 21 – 23 **or** a correct value for their graph must be ascending (could be a lobf)
		eg (over 46 =) $\frac{80-"58"}{80}(\times 100)(=0.275)$ **or** (under 46 =) $\frac{"58"}{80}(\times 100)(=0.725 \text{ or } 72.5)$			M1ft	method to find the fraction or percentage of people aged over or under 46 ft from their graph **or** a value in the range 0.26 - 0.29 or 0.71 - 0.74 or 71 (%) - 74(%)
		Correct answer scores full marks (unless from obvious incorrect working)	28		A1ft	accept 26 – 29, ft their cf graph
						Total 6 marks

2. Nov 2023 1H/Q 13

13	(a)		25	1	B1 Allow 25 – 25.5
	(b)	80 – [74, 76] (= [4, 6]) or 80 – (their value from a correct method) $\frac{"[74,76]"}{80}\times 100(=[92.5,95])$		3	M1 Allow a clear method to read off from cf diagram at 50 seconds and subtract this value from 80 **or** read the value and use a method to find this as a percentage of 80
		$\frac{"[4,6]"}{80}\times 100$ (=[5, 7.5]) oe or $100-\left(\frac{"[74,76]"}{80}\times 100\right)$ oe or "[4, 6]" ÷ 0.8 oe			M1ft if previous M1 awarded
		Working required	6.25		A1 dep on M1 Allow range 5 – 7.5
					Total 4 marks

3. June 2023 1H/Q 12

12	(a)		28	1	B1	allow 27.5 – 28.5
	(b)		14	1	B1	cao
	(c)			2	M1	for a reading of 38 from vertical axis **or** 50 – (their reading from a height of 35)
		Correct answer scores full marks (unless from obvious incorrect working)	12		A1	cao
						Total 4 marks

4. June 2023 1HR/Q 14

4. June 2023 1HR/Q 14

14	(a)		15, 31, 52, 66, 74, 80	1	B1	
	(b)			2	M1	ft from table for at least 5 points plotted correctly at end of interval **or** ft from sensible table for all 6 points plotted consistently within each interval in the **freq table** at the correct height
			Correct cf curve		A1	accept curve or line segments accept curve that is not joined at (50,0)
	(c)	*Correct answer scores full marks (unless from obvious incorrect working)*	73 – 75	1	B1ft	ft their cumulative frequency graph
	(d)	NB: readings are 62.5 – 64 and 85 – 86.5 (but for this M1 these do not have to be correct if correct working is shown – eg lines or marks indicating use of CF 20 (or 20.25)and CF 60 (or 60.75) with an indication on the Time Taken axis at the correct points (or they can just show the correct readings))		2	M1ft	For correct use of LQ and UQ, ft from a cum freq graph provided method is shown – eg a line horizontally to the graph from readings of CF 20 and CF 60 to meet the graph and then a vertical line to the Time Taken axis (even if wrongly read scale) **or** clear marks on the graph and Time Taken axis that correspond to the correct readings **or** correct values from the Time Taken axis
		If answer is in the given range, then award the marks – unless from obvious incorrect working	21 to 24		A1ft	Accept a single value in range 21 to 24 or ft from their cumulative frequency graph provided method is shown
		Correct answer scores full marks (unless from obvious incorrect working)				**Total 6 marks**

5. Jan 2023 1HR/Q 11

11	(a)		7, 17, 32, 64, 80	1	B1	values seen in table
	(b)			2	M1ft	for at least 4 points plotted correctly at end of interval **or** for all points plotted consistently within each interval of the associated frequency table (eg at 5, 15, 25, 35, 45 or 0, 10, 20, 30, 40) at the correct height. ft their table dep on one error only in the table
		(NB: a 'bar chart' type graph scores zero marks)	correct cf graph		A1	All points plotted correctly at end of interval (tolerance 1 small square – **there is an overlay**) and joined with a curve or line segments accept curve that is not joined at (0, 0).
	(c)	*Accept a single value in the range OR ft their cf graph*	33	1	B1ft	Accept a single value in range 32 – 34 **or** ft their cf graph
	(d)	NB: readings are 21 - 23 and 37 - 39 (but for this M1 these do not have to be correct if correct working is shown – eg lines or marks indicating use of CF 20 (or 20.25)and CF 60 (or 60.75) with an indication on the Time axis at the correct points (or they can just show the correct readings))		2	M1ft	For correct use of LQ and UQ and subtraction, ft from a cum freq graph provided method is shown – eg a line horizontally to the graph from readings of CF 20 and CF 60 to meet the graph and then a vertical line to the Time axis(even if wrongly read scale) **or** clear marks on the graph and Time axis that correspond to the correct readings **or** correct values from the Time axis
		Accept a single value in the range OR ft their cf graph	16		A1ft	Accept a single value in range 15 to 17 or ft from their cumulative frequency graph provided method is shown eg subtraction of values that would be correct for their graph
						Total 6 marks

6. Jan 2022 1H/Q 12

12	(a)		7, 33, 57, 71, 78, 80	1	B1	
	(b)			2	B2	Fully correct cf graph – points at ends of intervals and joined with curve or line segments. If not B2 then B1(ft from a table with only one arithmetic error) for 5 or 6 of their points at ends of intervals and joined with curve or line segments **OR** for 5 or 6 points plotted correct at ends of intervals not joined **OR** for 5 or 6 points from table plotted consistently within each interval (not at upper ends of intervals) at their correct heights and joined with smooth curve or line segments.
	(c)		21 – 24	1	B1ft	any value in range or ft their cf curve
	(d)			2	M1ft	eg reading of 72 – 74 or 6 – 8 could be seen as the numerator of a fraction ft their cf graph
			$\frac{8}{80}$		A1ft	oe, ft their cf graph fractional answers must have an integer numerator and denominator
						Total 6 marks

7. Nov 2021 1H/Q 11

11	(a)		(12), 36, 64, 76, 86, 90	1	B1
	(b)			2	M1 ft from table for at least 5 points plotted correctly (± 0.5 squares) at end of interval **or** ft from (CF) table for all 6 points plotted consistently (± 0.5 squares) within each interval in the **freq table** at the correct height
			Correct cf diagram		A1 accept curve or line segments accept graph that is not joined to (25, 0)
	(c)	E.g. reading at 42 minutes and reading at 52 minutes		2	M1 for correct use of 42 and 52, ft from a cum freq graph provided method is shown – e.g. a line vertically drawn to the graph from readings of 42 and 52 on the Time axis to meet the graph and then a horizontal line to the CF axis (even if wrongly read scale) **or** clear marks on the graph and CF axis that correspond to the correct readings **or** correct values from the CF axis
		Correct answer scores full marks (unless from obvious incorrect working)	25 – 29		A1 ft Accept a single value in range 25 to 29 or ft from their cumulative frequency graph provided method is shown
					Total 5 marks

8. Jan 2021 1H/Q11

11	(a)			2	M1 for use of cf at 45
			146		A1 accept in the range 145 – 147
	(b)	93.75 ÷ 3.75 (= 25)		3	M1
		Using cf diagram at 90 – "25" (= 65)			M1 for use of cf at "65"
			151		A1 accept in the range 150 – 152
					Total 5 marks

9. Jan 2021 1HR/Q11

11	a		8, 23, 40, 68, 101, 120	1	B1	
	b			2	M1	ft from table for at least 5 points plotted correctly at end of interval **or** ft from sensible table for all 6 points plotted consistently within each interval in the **freq table** at the correct height
			Correct cf graph		A1	accept curve or line segments accept graph that is not joined to (0,0)
	c		17 – 20	1	B1	ft their cf graph
	d	E.g. Reading at 23 minutes (= a) **and** then $(120 - a) \div 120 \times 100$		2	M1	ft from their cf graph reading off at 23 minutes and a method to work out 120 minus this value as a percentage of 120
			25(%) – 29(%)		A1	ft from their cf graph dep on M1 seen
						Total 6 marks

10. Nov 2020 1HR/Q11

11	(a)		9, 28, 45, 63, 76, 80	1	B1	
	(b)			2	B2	for a correct cf graph with points at ends of intervals and joined with a curve or line segments If not B2 then B1 for 5 or 6 of their points (ft from a table with only one arithmetic error) at ends of intervals and joined with a curve or line segments **OR** for 5 or 6 points plotted correctly at ends of intervals not joined **OR** for 5 or 6 of their points from table plotted consistently within each interval (not at upper ends of intervals) at their correct heights and joined with a curve or line segments
	(c)	e.g. reading across from 40 and reading down		2	M1	ft reading from a cf graph provided method is shown
			35 - 38		A1	ft from their cf graph
						Total 5 marks

11. Jan 2020 1H/Q12

12	(a)	E.g. 56 – 38		2	M1 for subtracting readings from 60 and 20 oe
			18		A1 for answer in the range 17 – 19
	(b)	[40.5, 43]		3	B1
		'42' ÷ 0.6 oe			M1 for complete method to find the number of men
			70		A1
					Total 5 marks

12. Jan 2020 1HR/Q12

12	a		23	1	B1	accept 22 – 24
	b	e.g. 29 – 17			M1	For subtracting readings from 15 and 45
			12	2	A1	accept 10 – 14
	c				B1	ft comparison of the medians
			Two comparisons (at least one of which must be in context)	2	B1	ft comparison of the IQR **Note: to award 2 marks at least one comparison must be in context**
						Total 5 marks

13. Jan 2019 1H/Q 9

Question	Working	Answer	Mark	Notes
9 (a)		3, 19, 43, 53, 58, 60	1	B1
(b)				M1 ft from (a) if only one addition error for at least 4 points plotted correctly at end of interval **or** for all 6 points plotted consistently within each interval in the frequency table at the correct height (Eg. using values of 5, 15, 25 etc on *x* axis)
		correct cf graph	2	A1 accept curve or line segments accept curve which is not joined to (0,0)
(c)	15 and 45 indicated on the cumulative frequency axis and readings taken from speed axis			M1 ft from a cf graph for a correct method to find LQ and UQ and intention to subtract Eg for a correct reading from 45/45.75 and 15/15.25 from vertical axis to find LQ and UQ **and** an intention to subtract
		13 – 15	2	A1 accept 13 – 15 ft from a cf graph

14. Jan 2019 1HR/Q 14

Question	Working	Answer	Mark	Notes
14 (a)		97	1	B1 96 - 98
(b)		Correct graph	2	M1 for at least 4 points plotted correctly at end of interval **or** for all 6 points plotted consistently within each interval at the correct height
				A1 accept curve or line segments accept curve that is not joined to (0, 0)
(c)		14	2	M1 A line drawn at CF = 60 to meet at least one curve or sight of "55" or "69"
				A1 13 - 15 ft candidate's CFD

15. June 2018 1H/Q 10

Question	Working	Answer	Mark	Notes
11 a	$2x^2 - x + 6x - 3$ **or** $2x^2 + 5x - 3$ **or** $x^2 + 3x - 5x - 15$ **or** $x^2 - 2x - 15$ **or** $2x^2 - 10x - x + 5$ **or** $2x^2 - 11x + 5$ eg. $2x^3 + 5x^2 - 3x - 10x^2 - 25x + 15$ **or** $2x^3 - 4x^2 - 30x - x^2 + 2x + 15$ **or** $2x^3 - 11x^2 + 5x + 6x^2 - 33x + 15$	$2x^3 - 5x^2 - 28x + 15$	3	M1 for expansion of any 2 of the 3 brackets (at least 3 of 4 terms correct) M1 (dep) ft for at least half of their terms correct in second expansion (the correct number of terms **must** be present) A1
	Alternative scheme			
	$2x^3 - 10x^2 - x^2 + 5x + 6x^2 - 30x - 3x + 15$	$2x^3 - 5x^2 - 28x + 15$	3	M2 for a complete expansion with 8 terms present, at least 4 of which must be correct A1

b	Reading from graph from time = 120 (=55) **or** 80 – 55 (=25) 0.35 × 80 (=28) **or** e.g. $\frac{80-"55"}{80}\times 100$ oe (=31(.25)) **or** $\frac{"55"}{80}\times 100$ oe (= 68(.75))	No with correct figures	3	M1 M1 A1	accept reading in range 55 – 56 accept a value in the range 30 – 31.25 **or** a value in the range 68 – 70 for this mark unless clearly from incorrect working eg. No with 28 and 25 **or** No with 31.25% (accept value in range 30% – 31.25%) **or** No with 68.75% and 65% (accept value in range 68% – 70%)
	Alternative scheme 0.65 × 80 (=52) Reading from graph from cf = 52 (=118) **or** Reading from graph from time = 120 (=55)	No with correct figures	3	M1 M1 A1	 accept reading in range 55 – 56 eg. No with 118 (minutes) **or** No with 52 and 55

16. Specimen 1H/Q 11

Question	Working	Answer	Mark	AO		Notes
11	e.g. $(x^2 + 5x - 3x - 15)(x + 3)$ **or** $(x^2 + 2x - 15)(x + 3)$ **or** $(x - 5)(x^2 + 3x - 3x - 9)$ **or** $(x - 5)(x^2 - 9)$ E.g. $x^3 + 3x^2 + 2x^2 + 6x - 15x - 45$ **or** $x^3 + 5x^2 - 9x - 45$	$x^3 + 5x^2 - 9x - 45$	3	AO1	M1 M1 A1	expansion of any two of the three brackets – at least 3 correct terms (dep) ft for at least 3 correct terms in second expansion