



Name: _____ Date: _____ Score: _____ / 65

- 1 The frequency table shows the times, t minutes, taken by 35 students to finish a puzzle.

Time (t minutes)	Frequency
$0 < t \leq 5$	8
$5 < t \leq 10$	12
$10 < t \leq 15$	9
$15 < t \leq 20$	6

Noah makes a cumulative frequency table for this data. He writes the cumulative frequencies 8, 20, 29, 34.

Explain what is wrong with Noah's cumulative frequencies.

(1 mark)

Answer _____

- 2 The table shows the masses, m grams, of 40 tomatoes.

Mass (m grams)	Frequency
$50 < m \leq 60$	5
$60 < m \leq 70$	11
$70 < m \leq 80$	14
$80 < m \leq 90$	7
$90 < m \leq 100$	3

Complete the cumulative frequency table.

Mass (m grams)	Cumulative frequency
$50 < m \leq 60$	
$50 < m \leq 70$	
$50 < m \leq 80$	
$50 < m \leq 90$	
$50 < m \leq 100$	

(2 marks)

Answer _____

- 3 The table shows the ages, a years, of the 60 members of a running club.

Age (a years)	Frequency
$10 < a \leq 20$	9
$20 < a \leq 30$	15
$30 < a \leq 40$	18
$40 < a \leq 50$	12
$50 < a \leq 60$	6

- a. Complete a cumulative frequency table for this data.
b. Write down the class interval that contains the median age.

(3 marks)

Answer _____

- 4 40 students took a typing test. Salma drew a cumulative frequency graph for their times. Salma plotted each cumulative frequency against the midpoint of its class interval.

- a. Explain the mistake Salma made.
b. Salma redraws the graph correctly. The correct graph shows a cumulative frequency of 34 at a time of 40 seconds. How many students took longer than 40 seconds?
c. What percentage of the 40 students took longer than 40 seconds?

(3 marks)

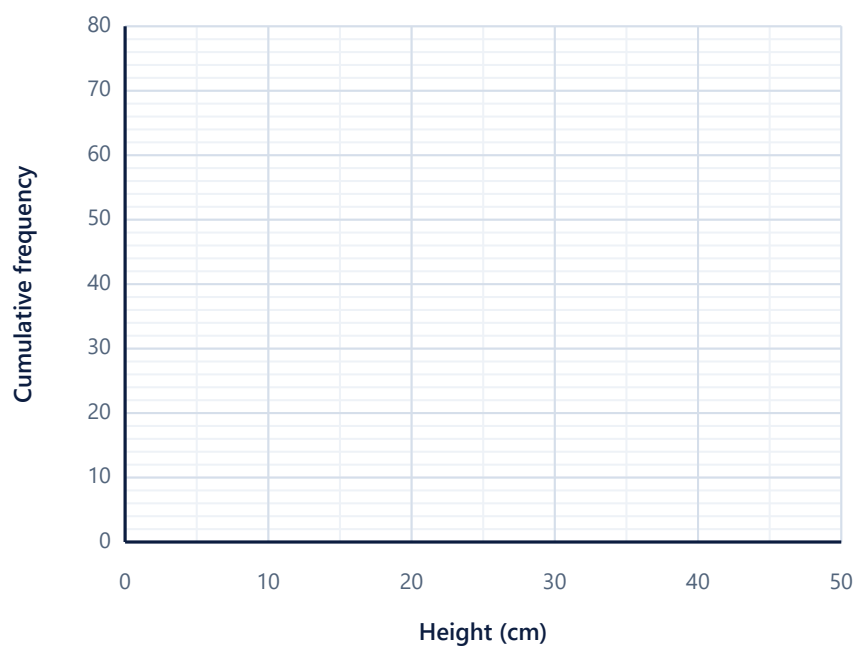
Answer _____

5

The table shows the heights, h cm, of 80 sunflower seedlings.

Height (h cm)	Frequency
$0 < h \leq 10$	6
$10 < h \leq 20$	14
$20 < h \leq 30$	26
$30 < h \leq 40$	22
$40 < h \leq 50$	12

- Complete the cumulative frequency table.
- On the grid, draw a cumulative frequency graph for this information.
- Use your graph to find an estimate for the median height.
- Use your graph to find an estimate for the interquartile range of the heights.



(6 marks)

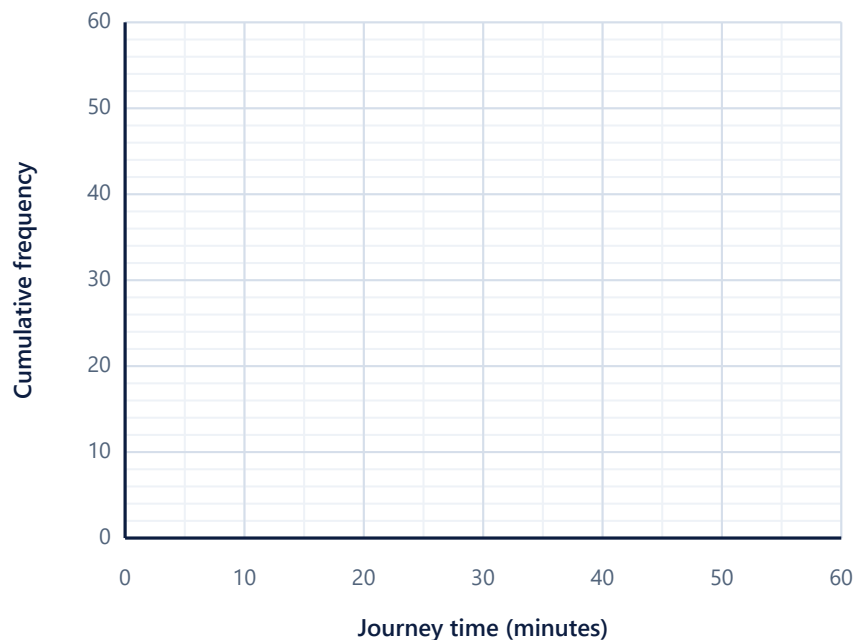
Answer _____

6

The table shows the journey times, t minutes, of 60 commuters.

Time (t minutes)	Frequency
$0 < t \leq 10$	4
$10 < t \leq 20$	10
$20 < t \leq 30$	17
$30 < t \leq 40$	15
$40 < t \leq 50$	9
$50 < t \leq 60$	5

- Complete the cumulative frequency table.
- On the grid, draw a cumulative frequency graph for this information.
- Use your graph to find an estimate for the median journey time.
- Use your graph to estimate the percentage of commuters whose journey took more than 45 minutes.



(6 marks)

Answer _____

- 7 The table shows the lengths, t minutes, of 40 phone calls.

Length (t minutes)	Frequency
$0 < t \leq 5$	6
$5 < t \leq 10$	14
$10 < t \leq 15$	12
$15 < t \leq 20$	8

- Complete a cumulative frequency table for this data.
- How many calls lasted 10 minutes or less?
- Estimate the number of calls that lasted more than 12 minutes. Assume the calls in each class are spread evenly.

(4 marks)

Answer _____

- 8 The cumulative frequency table shows the marks of 60 students in a test.

Mark	Cumulative frequency
up to 20	5
up to 40	18
up to 60	41
up to 80	57
up to 100	60

- How many students scored more than 40 marks and up to 60 marks?
- How many students scored more than 80 marks?
- Estimate the median mark. Assume the marks in each class are spread evenly.

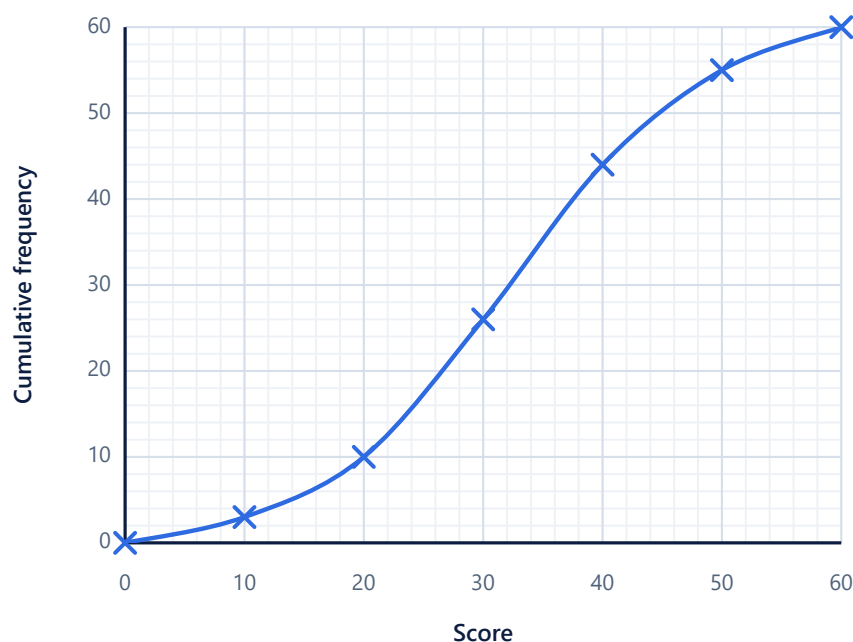
(4 marks)

Answer _____

9

The cumulative frequency graph shows the test scores of the 60 students in Class A.

- Use the graph to find an estimate for the median score.
- Use the graph to find an estimate for the interquartile range of the scores.
- The 60 students in Class B had a median score of 45 and an interquartile range of 12. Compare the scores of the two classes.



(6 marks)

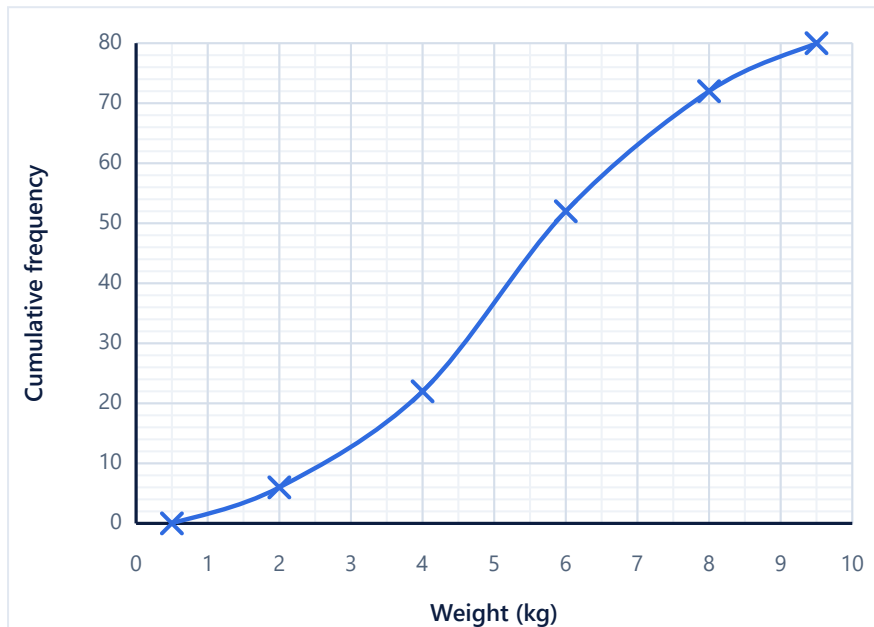
Answer

10

The cumulative frequency graph shows the weights, in kg, of 80 parcels sent from a depot on Monday.

The lightest parcel weighed 0.5 kg and the heaviest weighed 9.5 kg.

- Use the graph to draw a box plot for the weights of Monday's parcels.
- Use the graph to estimate the number of parcels that weighed more than 7 kg.
- On Tuesday the parcels had a median weight of 4.4 kg and an interquartile range of 2.1 kg. Compare the weights of Monday's and Tuesday's parcels.



(6 marks)

- 11 The table shows the heights, h cm, of 80 plants.

Height (h cm)	Frequency
$0 < h \leq 20$	8
$20 < h \leq 40$	22
$40 < h \leq 60$	30
$60 < h \leq 80$	14
$80 < h \leq 100$	6

- Complete a cumulative frequency table for this data.
- Estimate the median height.
- Estimate the interquartile range.

Assume the heights in each class are spread evenly.

(6 marks)

- 12 The table shows the commute times, t minutes, of 100 office workers.

Time (t minutes)	Frequency
$0 < t \leq 15$	12
$15 < t \leq 30$	30
$30 < t \leq 45$	34
$45 < t \leq 60$	18
$60 < t \leq 75$	6

- How many workers have a commute of 30 minutes or less?
- Write down the class interval that contains the median commute time.
- Write down the class interval that contains the upper quartile.
- A local newspaper claims that more than a third of the workers commute for over 45 minutes. Is the claim correct? Show your working.

(6 marks)

Answer _____

13

80 students sat an exam marked out of 100. The table shows their scores, s marks.

Score (s marks)	Frequency
$0 < s \leq 20$	6
$20 < s \leq 40$	18
$40 < s \leq 60$	28
$60 < s \leq 80$	20
$80 < s \leq 100$	8

- Complete the cumulative frequency table.
- Write down the class interval that contains the median score.
- A cumulative frequency graph of the data gives these estimates: median 51, lower quartile 37, upper quartile 66. Work out an estimate for the interquartile range.
- The pass mark was 60. Work out the percentage of students who scored more than 60.
- Last year the same exam had a median of 46 and an interquartile range of 24. Compare this year's scores with last year's.

(7 marks)

Answer _____

- 14 The table shows the waiting times, t minutes, of 120 customers in a cafe.

Waiting time (t minutes)	Frequency
$0 < t \leq 2$	15
$2 < t \leq 4$	35
$4 < t \leq 6$	40
$6 < t \leq 8$	20
$8 < t \leq 10$	10

- a. Complete a cumulative frequency table for this data.
- b. Estimate the 90th percentile of the waiting times. Assume the times in each class are spread evenly.
- c. The cafe says that "at least 90% of customers wait 8 minutes or less". Is the cafe correct? Give a reason.

(5 marks)

Answer _____

End of questions | Total 65 marks