

GCSE Statistics - Diagnostic test

Cumulative Frequency Polygons and Boxplots

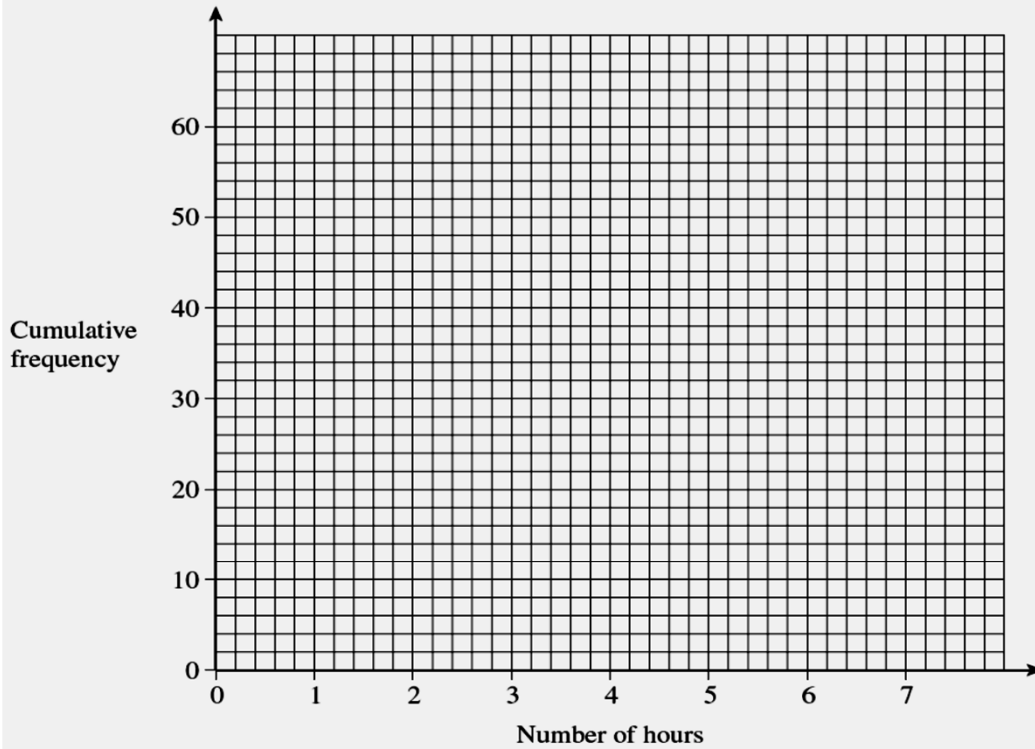
NAME: _____

1

Stephanie works at a local garage.
The table shows the cumulative frequencies for the number of hours of overtime worked by Stephanie each week, over a period of 60 weeks.

Number of hours	Cumulative Frequency
less than 1	2
less than 2	7
less than 3	10
less than 4	22
less than 5	41
less than 6	58
less than 7	60

(a) Draw a cumulative frequency polygon for these data on the axes below.



(3 marks)

(b) Estimate on how many weeks Stephanie worked between $4\frac{1}{2}$ and $5\frac{1}{2}$ hours overtime.

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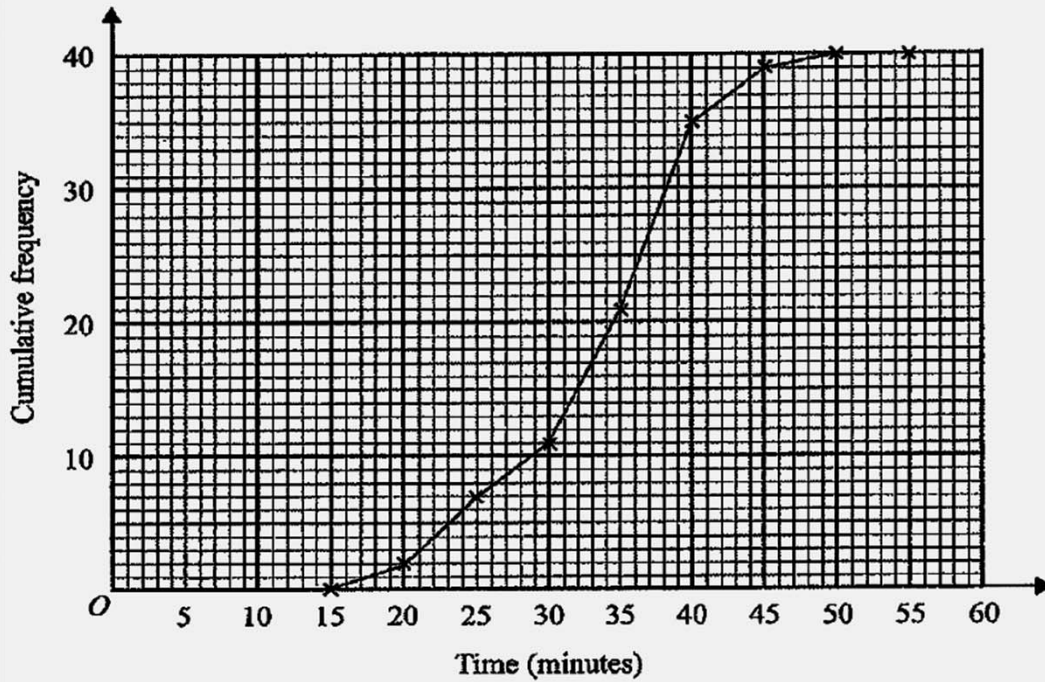
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Answer weeks *(3 marks)*

2

Some female students were asked to read an essay. The time taken, to the nearest minute, for each student to read the essay was recorded. The information is summarised in the cumulative frequency diagram.



(a) Using the cumulative frequency diagram,

(i) write down the number of students in the group,

(1)

.....

(ii) find the median time to read the essay,

(1)

..... minutes

(iii) work out the number of students who took less than 38 minutes to read the essay.

(3)

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3

In a traffic survey the police record the speeds, in miles per hour (mph), of 400 cars on a particular motorway in Britain.

The results were used to work out the information in the table.

	Speed (mph)
Minimum	45
Lower quartile	55
Median	67
Upper quartile	70
Maximum	95

(a) From this information, work out

(i) the range,

(1)

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(ii) the inter-quartile range.

(2)

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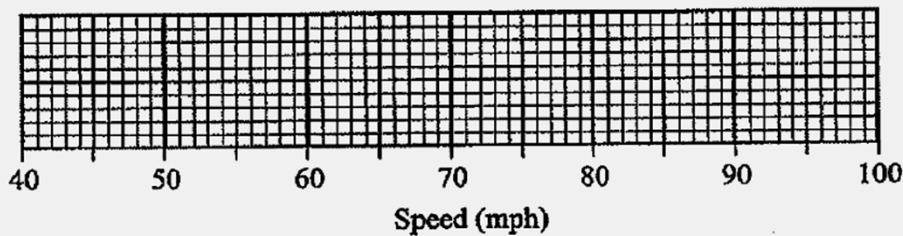
(b) Write down **one** disadvantage of using the range as a measure of spread.

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(1)

(c) On the grid, draw a box plot to represent the information in the table.



(2)

In Britain it is illegal to travel at a speed greater than 70 miles per hour.

Speed cameras help to reduce the speed of traffic.

(d) Use the information to justify the use of speed cameras on this motorway.

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(2)

Total _____ out of 19