



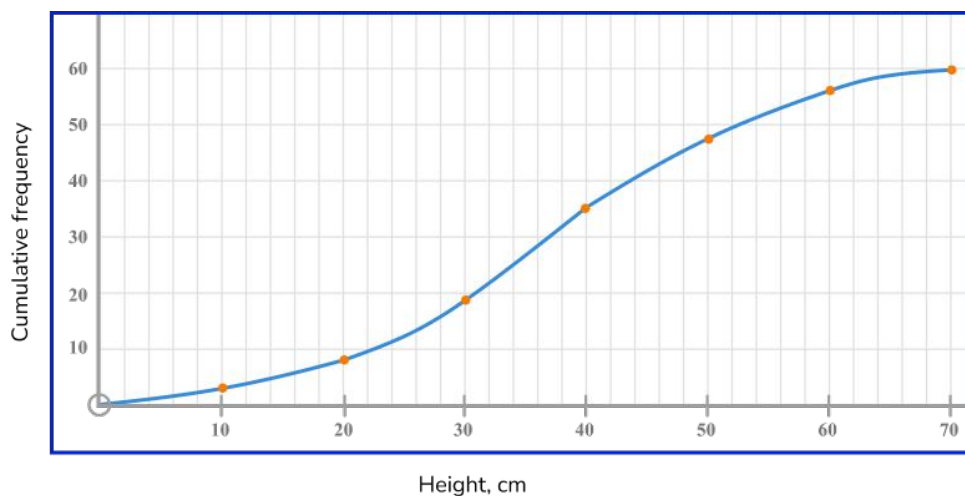
THIRD SPACE
LEARNING

GCSE Exam Questions

Cumulative Frequency |
Statistics

GCSE Exam Questions: Cumulative Frequency

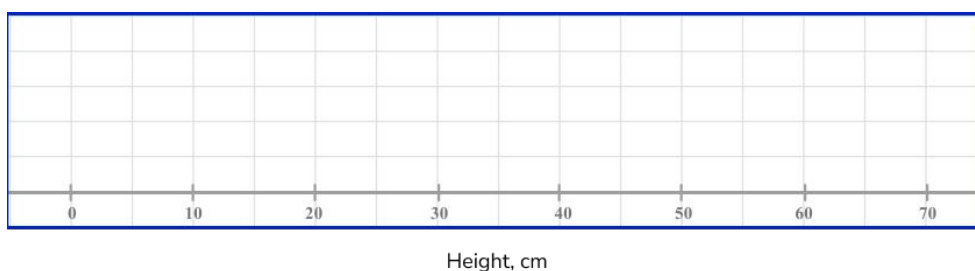
- 1) The heights of 60 plants were recorded. The cumulative frequency graph gives information about the heights recorded, correct to the nearest *cm*.



The shortest plant was 4*cm*.

The tallest plant was 65*cm*.

Draw a box plot to represent this distribution.



(3 marks)

GCSE Exam Questions: Cumulative Frequency

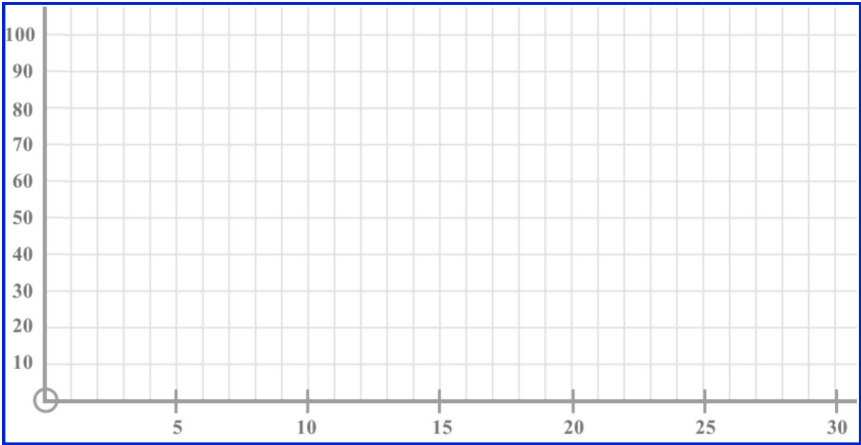
2) Here is some information about the number of minutes spent in a shop by a group of 100 shoppers:

Time (min)	Frequency
$0 < t \leq 2$	5
$2 < t \leq 5$	34
$5 < t \leq 10$	28
$10 < t \leq 15$	16
$15 < t \leq 20$	10
$20 < t \leq 30$	7

Time (min)	CF
$0 < t \leq 2$	
$0 < t \leq 5$	
$0 < t \leq 10$	
$0 < t \leq 15$	
$0 < t \leq 20$	
$0 < t \leq 30$	

(a) Complete the cumulative frequency table above. (1)

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



(c) Use your graph to estimate the percentage of shoppers who took longer than 12 minutes.

(3)
(6 marks)

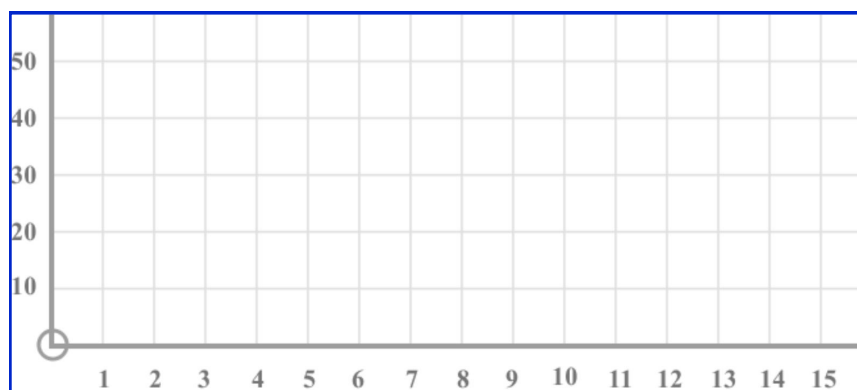
GCSE Exam Questions: Cumulative Frequency

- 3) Here is some information about the price of 50 used cars sold by a dealership in a year.

Price (£K)	Frequency	Price (£K)	CF
$0 < p \leq 3$	3	$0 < p \leq 3$	
$3 < p \leq 6$	15	$3 < p \leq 6$	
$6 < p \leq 9$	10	$6 < p \leq 9$	
$9 < p \leq 12$	18	$9 < p \leq 12$	
$12 < p \leq 15$	4	$12 < p \leq 15$	

- (a) Complete the cumulative frequency table: (1)

- (b) On the grid, draw the cumulative frequency graph for this information.



(2)

- (c) Use your graph to estimate the percentage of cars that cost more than £10000.

(3)

- (d) The car dealership also sells new cars. The median car price for the same year was £20000 and the interquartile range was £5500.

Compare the prices of the new and used cars.

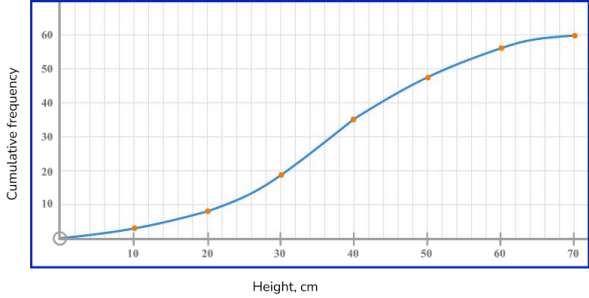
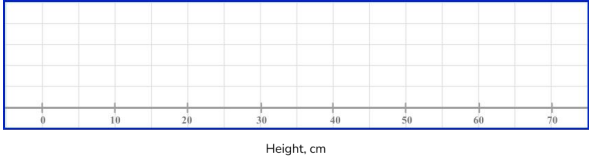
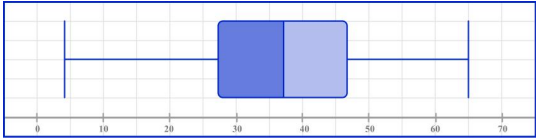
Statement 1:

Statement 2:

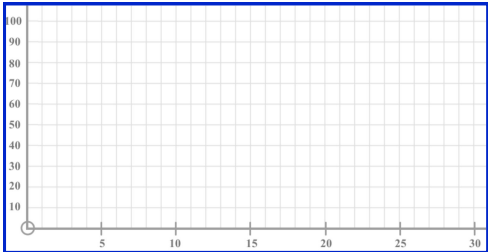
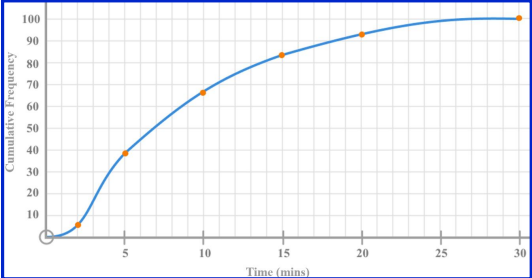
(3)

(9 marks)

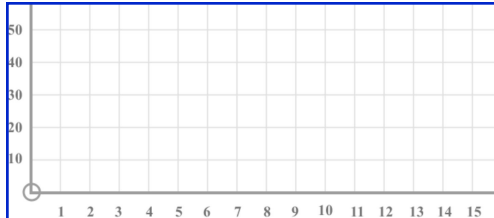
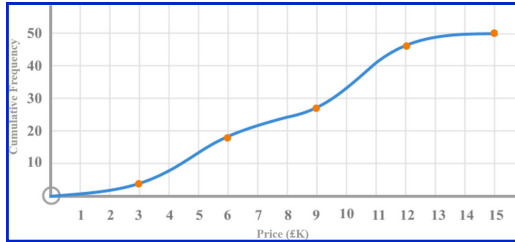
GCSE Exam Questions: Cumulative Frequency Answers

	Question	Answer	Marks
1)	The heights of 60 plants were recorded. The cumulative frequency graph gives information about the heights recorded, correct to the nearest <i>cm</i>.  The shortest plant was 4<i>cm</i>. The tallest plant was 65<i>cm</i>. Draw a box plot to represent this distribution. 	Ends of whiskers at 4 and 65 with a box seen Median at 37 (± 1) Ends of box at 27 (± 1) and 47 (± 1) 	(1) (1) (1)

GCSE Exam Questions: Cumulative Frequency Answers

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2)	Here is some information about the number of minutes spent in a shop by a group of 100 shoppers: <table><thead><tr><th>Time (min)</th><th>Frequency</th></tr></thead><tbody><tr><td>$0 < t \leq 2$</td><td>5</td></tr><tr><td>$2 < t \leq 5$</td><td>34</td></tr><tr><td>$5 < t \leq 10$</td><td>28</td></tr><tr><td>$10 < t \leq 15$</td><td>16</td></tr><tr><td>$15 < t \leq 20$</td><td>10</td></tr><tr><td>$20 < t \leq 30$</td><td>7</td></tr></tbody></table> <table><thead><tr><th>Time (min)</th><th>CF</th></tr></thead><tbody><tr><td>$0 < t \leq 2$</td><td></td></tr><tr><td>$0 < t \leq 5$</td><td></td></tr><tr><td>$0 < t \leq 10$</td><td></td></tr><tr><td>$0 < t \leq 15$</td><td></td></tr><tr><td>$0 < t \leq 20$</td><td></td></tr><tr><td>$0 < t \leq 30$</td><td></td></tr></tbody></table>	Time (min)	Frequency	$0 < t \leq 2$	5	$2 < t \leq 5$	34	$5 < t \leq 10$	28	$10 < t \leq 15$	16	$15 < t \leq 20$	10	$20 < t \leq 30$	7	Time (min)	CF	$0 < t \leq 2$		$0 < t \leq 5$		$0 < t \leq 10$		$0 < t \leq 15$		$0 < t \leq 20$		$0 < t \leq 30$			
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(b)	On the grid, draw the cumulative frequency graph for this information. 	(b)  4 or 5 points plotted correctly Completely correct graph	(1) (1)																												
(c)	Use your graph to estimate the percentage of shoppers who took longer than 12 minutes.	(c) Method to read off the graph at 12 on the x-axis - approx 73 on cf axis $100 - \text{their } 73$ $27\% \text{ ft}$	(1) (1) (1)																												

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	(d) The car dealership also sells new cars. The median car price for the same year was £20000 and the interquartile range was £5500. Compare the prices of the new and used cars.	(d) $LQ = 4.9 (\pm 0.1)$ and $UQ = 10.5 (\pm 0.1)$ with IQR £5600 The median for used cars is £8500. The median price for new cars is higher than the median price for used cars / on average, new cars cost more than used cars oe The IQR for new and used cars is similar / there is a similar spread of data oe	(1) (1) (1)																																				

Where to go next?

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