

Cumulative Frequency Graph Past Paper Answers

GCSE Edexcel – None Calculator

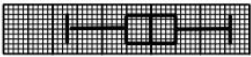
1.

Question	Working	Answer	Mark	Notes
(a)		5, 30, 60, 75, 80	1	B1 for correct cumulative frequencies (may be implied by correct heights on the grid)
(b)		cf graph	2	M1 for at least 4 of the 5 points plotted correctly at the ends of the intervals or 4 of the 5 points plotted not at the ends but consistently within each interval and joined (dep on a cf table with no more than one arithmetic error) A1 for a fully correct cf graph (points may be joined by a curve or straight line segments)
(c)	$IQR = UQ - LQ$	26-28	2	M1 for reading values from their cf graph at $cf = 20$ or 20.25 and $cf = 60$ or 60.75 A1ft provided M1 is awarded in (b)
(d)		55-59	3	M1 for reading a value from their cf graph at weight 150 grams M1 for $\frac{45}{80} \times 100$ A1ft provided M1 is awarded in (b)

2.

(a)		128	1	B1 for answer in the range 128 to 128.5
(b)		10.5 to 11.5	2	M1 for a LQ in the range 122 to 122.5 or an UQ in the range 133 to 133.5 A1 for answer in the range 10.5 to 11.5

3.

(a)		170	1	B1 accept answers in range 170 - 170.5 inclusive
(b)			3	B3 for box plot with all 3 aspects correct (overlay) aspect 1 : ends of whiskers at 153 and 186 aspect 2 : ends of box at 165 and 175 aspect 3 : median marked at 170 or ft (a) provided $165 < (a) < 175$ (B2 for box plot with two aspects correct) (B1 for one aspect or correct quartiles and median identified) SC : B2 for all 5 values (153, 165, '170', 175, 186) plotted
(c)		Two correct comparisons	2	B1 ft from (b) for a correct comparison of range or inter-quartile range eg. the range / iqr is smaller for group B than group A B1 ft from (b) for a correct comparison of median or upper quartile or lower quartile or minimum or maximum eg. the median in group A is greater than the median in group B

4.

(a)	Cf table: 4, 9, 25, 52, 57,60 cf graph	Correct Cf graph	3	B1 Correct cumulative frequencies (may be implied by correct heights on the grid) M1 for at least 5 of "6 points" plotted consistently within each interval A1 for a fully correct CF graph
(b)(i)		172	3	B1 for 172 or read off at cf = 30 or 30.5 from a cf graph, ft provided M1 is awarded in (a)
(ii)	IQR = UQ – LQ	12 - 14		M1 for readings from graph at cf = 15 or 15.25 and cf = 45 or 45.75 from a cf graph with at least one of LQ or UQ correct from graph ($\pm \frac{1}{2}$ square). A1 ft provided M1 is awarded in (a)

5.

Question	Working	Answer	Mark	Notes
(a)		4, 20, 56, 80, 94, 100	1	B1 cao
(b)		graph	2	M1 ft from their table for at least 5 points plotted correctly at the ends of the intervals provided table values are cumulative, condoning one arithmetic error, or if the shape of the graph is correct for 5 or 6 points plotted not at the ends but consistently within each interval and joined A1 cao for correct graph with points joined by curve or straight line segments
(c)		47 to 49	1	B1 for 47 to 49 or ft their cf graph at cf = 50
(d)		13 to 16	2	M1 for reading a value from their cf graph at time = 63 (84 to 87) A1 for answer in the range 13 to 16 or ft from their graph

6.

(a)	40, 110, 170, 185, 195, 200	Table	1	B1
(b)		Cumulative frequency diagram	2	M1 ft their cumulative frequency table for at least 5 points plotted correctly at the ends of the intervals provided tables values are cumulative, condoning one arithmetical error, or if the shape of the graph is correct for 5 or 6 points plotted not at the ends but consistently within each interval and joined. A1 for a correct graph (allow curve or line segments)
(c)		40 to 48	2	M1 for reading their cumulative frequency graph from mark of 54 (= 152 to 160) where the points are plotted consistently within each interval and joined. A1 for answer in the range 40 to 48 or ft from their cumulative frequency graph

7.

Question	Working	Answer	Mark	Notes
(a)		8, 23, 53, 70, 77, 80	1	B1 cao
(b)		graph	2	M1 ft from their table for at least 5 points plotted correctly at the ends of the intervals provided table values are cumulative, condoning one arithmetic error A1 cao for correct graph with points joined by curve or straight line segments [SC B1 if the shape of the graph is correct and 5 points of their points are not at the ends but consistently within each interval and joined.]
(c)	Readings at 60 and 20 420 to 440 – 280 to 295	120 – 160	2	M1 (dep on cf graph) for use of either cf = 20 or cf = 60 A1 ft from a cf graph
(d)	80 – 71 to 74	6 – 9	2	M1 (dep on cf graph) for evidence of reading off the cf axis from £530 On the wages axis (could be the answer) A1 ft for 6 - 9

8.

Question	Working	Answer	Mark	Notes
(a)		19, 36, 51, 63, 73, 80	1	B1 cao
(b)		cf graph	2	M1 for at least 5 of the 6 points plotted at each upper end of the interval (not joined) or 5 of the 6 points plotted consistently within interval (not upper end) and joined (dep on a cf table with no more than one arithmetic error) A1 correct graph
*(c)		comparable value and conclusion	3	M1 for indication of a reading taken from a cf graph using weight = 3.4 kg or find UQ from 60 A1 for value given between 55 & 57 or 3.6 & 3.8 C1 (dep on at least M1) for conclusion (justified)

9.

Question	Working	Answer	Mark	Notes
(a)		correct graph	2	M1 for 5 or 6 or 7 points plotted correctly at the ends of the intervals (overlay) A1 cao for correct graph with points joined by curve or straight line segments [SC: B1 if the shape of the graph is correct and 5 or 6 or 7 of their points are not at the ends but are plotted consistently within (10,20) (20,30) (30,40) etc.]
(b)		No with supporting figures	2	M1 for $0.1 \times 200 (=20)$ or $0.9 \times 200 (=180)$ or sight of 180 used on cf axis or $200 - 186 (=14)$ A1 ft for correct decision with 20 and “9” or 20 and 14 or “age” from reading graph at 180 OR M1 for method to find percentage of workers who are over 65, eg $\frac{200-191}{200} \times 100 (=4.5\%)$ or method to find percentage of workers who are over 60 (from table), eg $\frac{200-186}{200} \times 100 (=7\%)$ or $\frac{200-190}{200} \times 100 (=5\%)$ A1 ft for correct decision with “4.5”% or 7% or 5%

10.

Question	Working	Answer	Mark	Notes
(a)		68	1	B1 cao
* (b)		Yes as $28 > 20$ or $35\% > 25\%$ or $53 < 60$	3	M1 for reading a value from graph at time = 60 (=28, accept 27 to 28) M1 for ' $28 \div 80 \times 100 (= 35)$ ' or $25 \div 100 \times 80 (= 20)$ C1 (dep on M2) for correct decision based on their figures OR M1 for $25 \div 100 \times 80 (= 20)$ M1 for reading a value from graph at cf = 20 (=53, accept 52 to 54) C1 (dep on M2) for correct decision based on their figures
(c)	28, 53, 68, 76, 96	Box plot plotted	3	B1 for ends of whiskers at 28 and 96 with a box B1 ft for median at '68' inside a box B1 for ends of box at 53 (accept 52 to 54) and 76