

Q1. The table shows the number of televisions sold each month by a shop.

Month	April	May	June	July	Aug	Sept	Oct
Number of televisions	163	100	118	99	63	92	74

- (a) Work out the four-point moving averages for this information.
The first three have been worked out for you.

.....120.....95.....93.....

(2)

- (b) Use the moving averages to describe the trend.

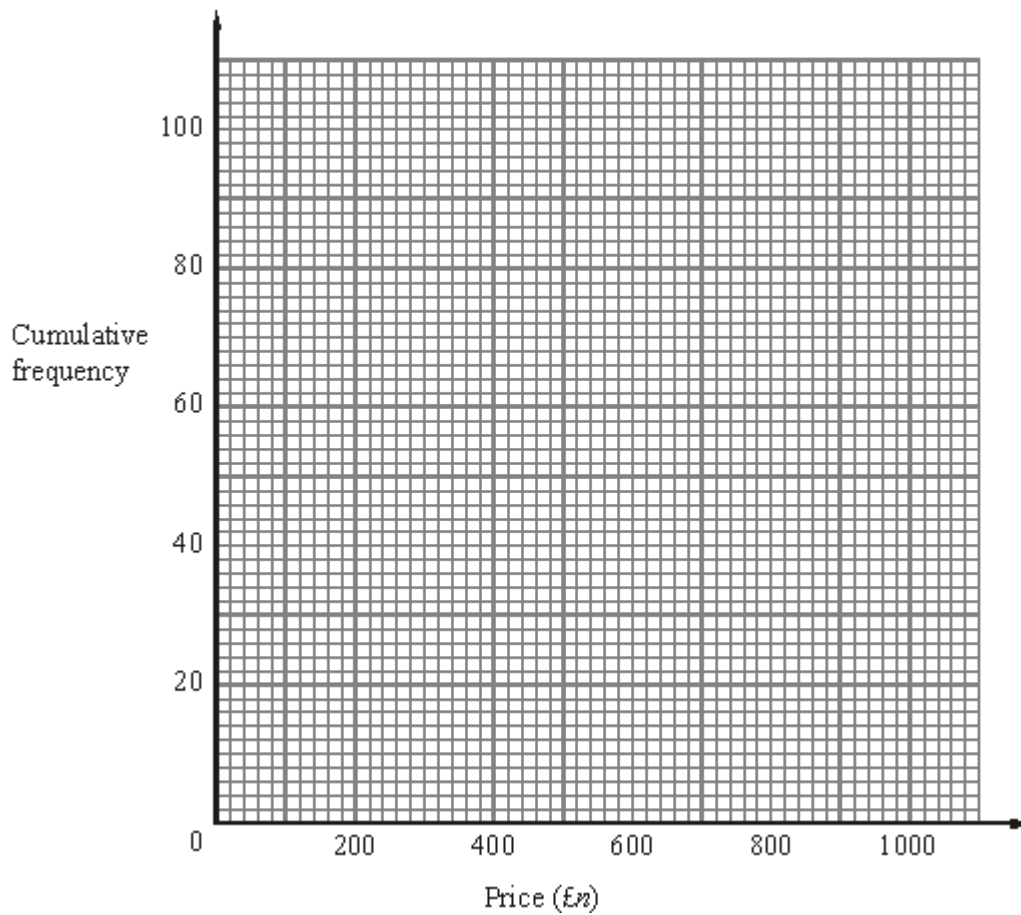
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(1)

The **cumulative frequency** table shows information about the prices, in £, of 100 televisions.

Price (£n)	Cumulative frequency
$0 < n \leq 200$	5
$0 < n \leq 400$	20
$0 < n \leq 600$	40
$0 < n \leq 800$	75
$0 < n \leq 1000$	100

- (c) On the grid below, draw a cumulative frequency graph for the table.



(2)

(d) Use your graph to find an estimate for the median price of these televisions.

£

(1)

(Total 6 marks)

Q2. A shop sells mobile phones.

The table shows the number of mobile phones sold each month from January to May.

Jan	Feb	Mar	Apr	May
70	64	73	85	91

- (a) Work out the percentage increase in the number of mobile phones sold from April to May.
Give your answer correct to 3 significant figures.

..... %

(3)

- (b) Work out the 3-month moving averages for the information in the table.
The first one has been worked out for you.

.....69.....

(2)
(Total 5 marks)

M1.

	Working	Answer	Mark	Additional Guidance
(a)		82	2	M1 for $(99 + 63 + 92 + 74) \div 4$ or $328 \div 4$ A1 cao
(b)		Decreasing	1	B1 for decreasing oe
(c)	Heights = 5, 20, 40, 75, 100	Correct cumulative frequency graph	2	B2 for fully correct cumulative frequency graph (Ignore any part of graph outside range of points) (B1 for 4 or 5 points plotted correctly ± 1 full (2mm) square at the end of interval or for 4 or 5 points plotted not at end but consistent within each interval and joined)
(d)		640 – 680	1	B1 for 640 – 680 or ft (dep on graph being cf) for reading from graph at 50+ 1 full (2mm) square
Total for Question: 6 marks				

M2.

	Working	Answer	Mark	Additional Guidance
(a)	$\frac{91 - 85}{85} \times 100 = \frac{6}{85} \times 100 =$ 7.05882..	7.06%	3	$\frac{91 - 85}{85} \times 100$ M2 $\frac{91 - 85}{85}$ or sight of $\frac{6}{85}$ (M1 or 0.0705 – 0.071 or or 1.0705 – 1.071) A1 7.05 – 7.06 Or $\frac{91}{85} \times 100 (= 107.05)$ M1 M1 (dep) “107.05” – 100

				A1 7.05-7.06 T&I methods must lead to an answer 7.05 – 7.06 for full marks, otherwise 0 marks
(b)	$(64 + 73 + 85)/3 = 222/3$ $= 74$ $(73 + 85 + 91)/3 = 249/3$ $= 83$	74, 83	2	M1 for $(64 + 73 + 85)/3$ or $(73 + 85 + 91)/3$ or $222/3$ or $249/3$ or 74 or 83 (condone missing brackets) A1 both answers in the correct order cao
Total for Question: 5 marks				

E1. Many candidates were not aware of how to find the last moving average in (a). By far the most common error was to find a three-point moving average, with some candidates even finding the average of the moving averages given.

In part (b) many candidates did not understand what was required and commented on the number of televisions sold each month. All that was required was to say that the trend was decreasing yet many went into great detail about every number in the table. In parts (a) and (b) 29% of the candidates scored all 3 marks with a further 44% scoring 2 marks. 20% of the candidates scored no marks at all.

Many candidates were successful in parts (c) and (d) with 38% scoring all 3 marks and a further 20% scoring two marks. Quite a few candidates plotted the cumulative frequency values at 100, 200, 300, 400 and 500 thinking that the points needed to be plotted at the midpoints of the price intervals, clearly not understanding the question.

Some of these candidates did, however, go on and earn the mark in (d) for correctly reading from their graph. Some plotted the points in the correct position but then failed to join the points whilst others plotted the points correctly but then proceeded to draw a line of best fit. Nearly 20% of the candidates scored no marks at all on the final two parts of the question.

E2. Part (a) was a percentage change question made a little more challenging by the relevant numbers being in a table. It was extremely rare for anything other than the 85 and 91 to be chosen. However, apart from that the remaining working was not good. Many candidates had little idea how to proceed and wrote 6% presumably from $91 - 85$. Others knew they had to convert a fraction to a percentage, but used a denominator of 91. Another common error was to calculate either $91/85$ or $91/85 \times 100$ and then omit the subtraction of either unity or 100. Some candidates adopted a trial and improvement approach but rarely got to within the demanded level of accuracy.

Part (b) was a standard moving average question. There were many correct answers, but also many candidates did not know where to start and left a blank or worked out the average of all the figures.

