AQA – Time Series – GCSE Statistics – 2021

1. June/2021/Paper_1F/No.8(b,c)

(b) Using the stem-and-leaf diagram, show that the median number of new followers she received during this three-week period is 20.

[1 mark]

_____

_____

(c) Rachel makes this statement about **weekends**.

'The mean number of new followers at weekends is more than 20.'

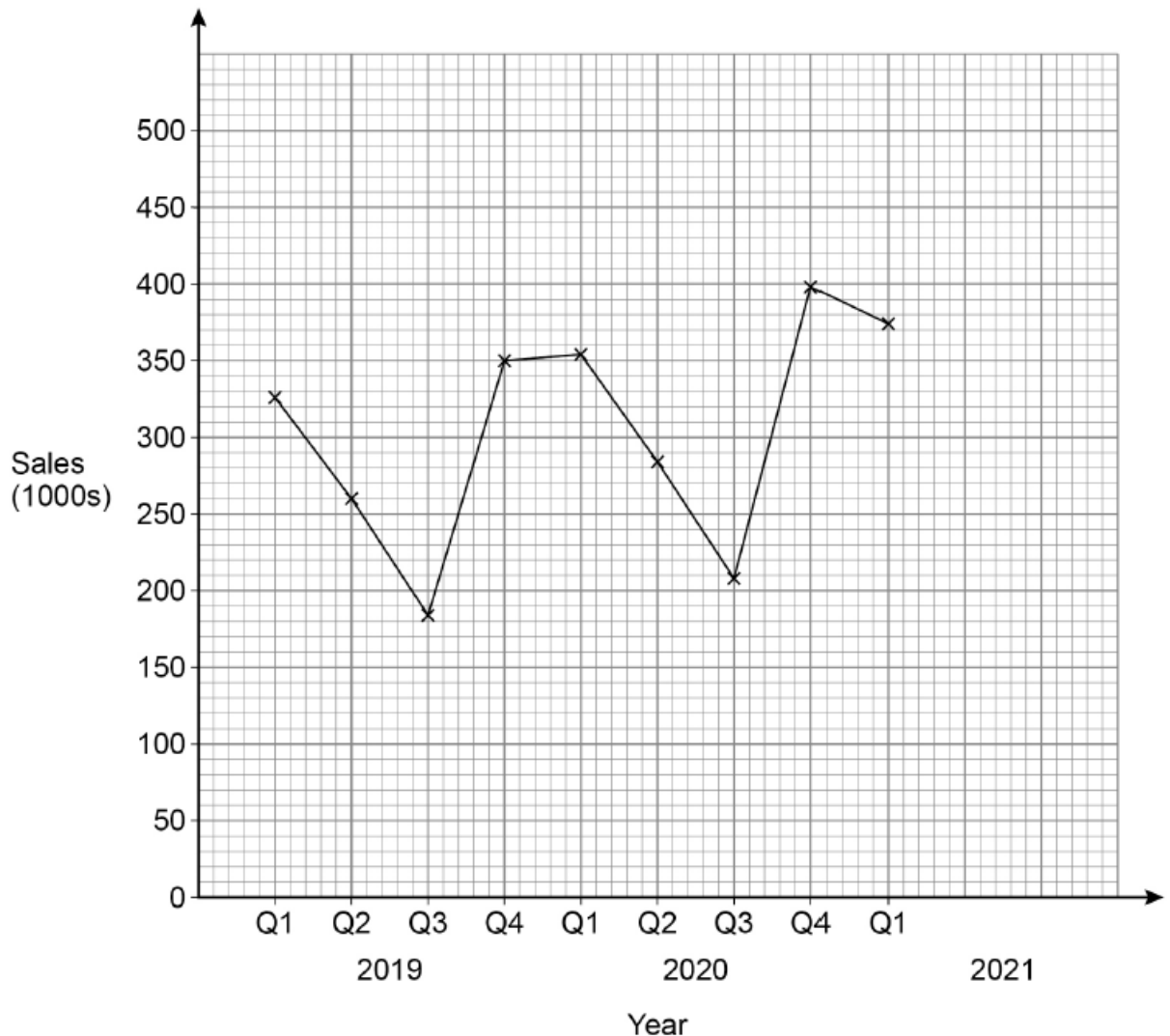Explain, **without calculation**, why Rachel is correct.

[1 mark]

_____

_____

2. June/2021/Paper_2H/No.10

Sales of apple crumble made by the company Aunt Elsie for quarterly periods are shown in the table and on the time series graph.

Year	2019				2020				2021
Quarter	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Sales (1000s)	326	260	184	350	354	284	208	398	374

(a) Simeon wants to look at the trend in sales based on these data.

He concludes that 4-point moving averages would be appropriate in this situation.

Give a reason why Simeon is correct.

[1 mark]

Reason _____

_____

2

(b) Some of the 4-point moving averages are in this table with the original data.

Year	2019				2020				2021
Quarter	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Sales (1000s)	326	260	184	350	354	284	208	398	374
4-point moving average (1000s)			280	287	293	299			

Calculate the two remaining 4-point moving averages.

Put your answers in the table.

[3 marks]

_____

_____

_____

_____

(c) Plot **all** the 4-point moving averages on the graph on the previous page.

[2 marks]

(d) Draw an appropriate trend line on the graph.

[1 mark]

(e) Describe the trend shown by the graph and your line in **part (d)**.

[1 mark]

_____

_____

_____

(f) (i) Calculate the mean seasonal variation (effect) for Quarter **2**.

You **must** complete the table to show your working.

[3 marks]

	Sales (1000s)	Trend line value (1000s)	Seasonal variation (1000s)
2019 Q2			
2020 Q2			
Mean seasonal variation =			

_____

_____

_____

_____

Answer _____ thousand

(f) (ii) Estimate the number of apple crumbles sold by Aunt Elsie in Quarter 2 of 2021.

[2 marks]

_____

_____

_____

_____

_____

Answer _____ thousand

3. June/2021/Paper_2H/No.12

In 2018, Vales High School had a budget of £3.8 million.

The percentage of the budget spent on different areas is given in the table.

Item	Staffing	Energy/Other	Services/Goods
Percentage (3sf)	87.2%	8.30%	4.50%

(a) Calculate the amount of money spent on staffing in 2018.

Give your answer in thousands of pounds, to the nearest thousand.

[2 marks]

Answer £ _____ thousand

(b) Using 2018 as the base year, the index numbers for each area for 2020 are as follows.

Item	Staffing	Energy/Other	Services/Goods
Index (2018 as base)	102.3	109.2	99.0

(b) (i) Calculate the weighted index number for 2020 costs, using 2018 as base.

[3 marks]

Answer _____

5

(b) (ii) Hence calculate the budget required to meet the increased costs for 2020.

Give your answer to three significant figures.

[2 marks]

_____

_____

_____

Answer £ _____