Time series and trend lines

Grade 4 | Foundation and Higher | 5 questions, 21 marks

GCSE Statistics topic practice

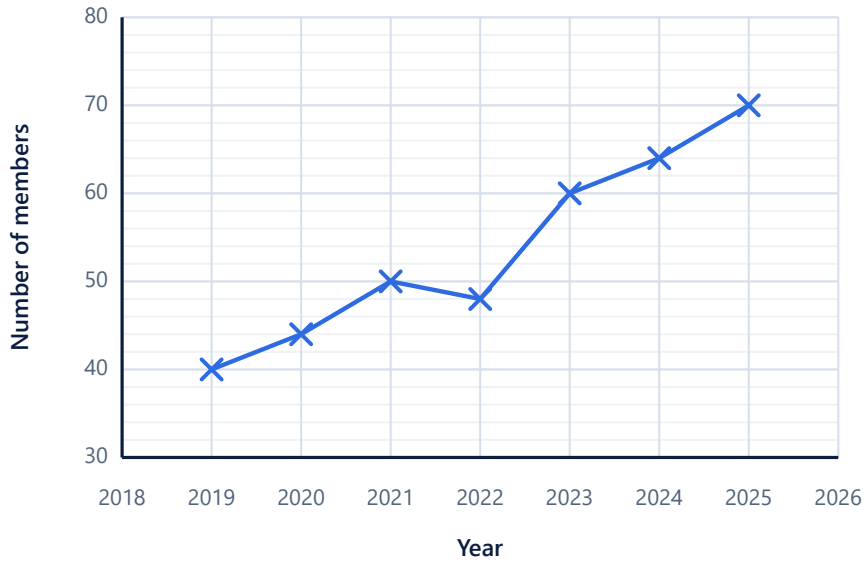
Name: _____ **Date:** _____ **Score:** _____ **/ 21**

1 The time series graph shows the number of members of a chess club at the start of each year from 2019 to 2025.

a. Write down the number of members in 2022. (1)

b. Between which two years next to each other did the number of members increase the most? (1)

c. Describe the trend in the number of members. (1)



(3 marks)

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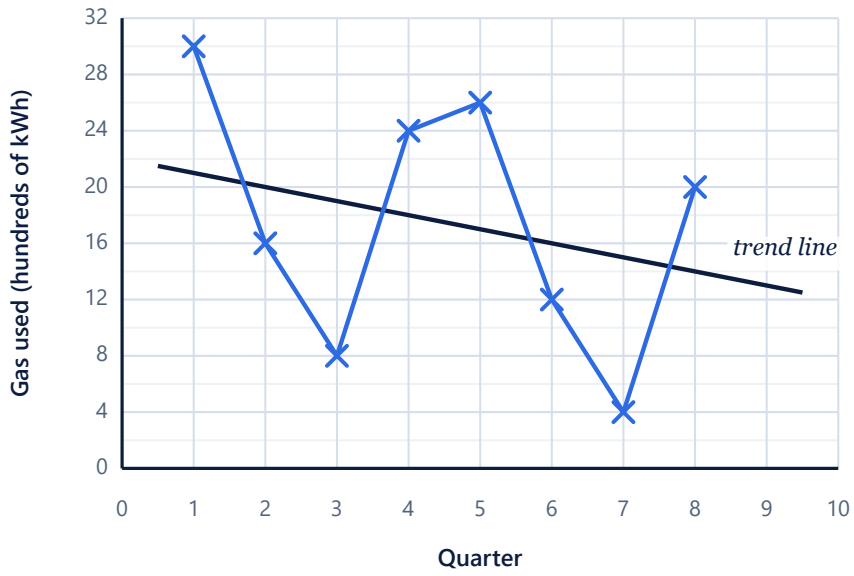
2 The time series graph shows the amount of gas, in hundreds of kWh, used by a household in each quarter of 2024 and 2025. Quarter 1 is January to March 2024 and quarter 5 is January to March 2025.

A trend line has been drawn on the graph.

a. Describe the trend in the amount of gas used. (1)

b. In which three months of each year does the household use the most gas? Suggest a reason for this. (2)

c. Use the trend line to find the trend value for quarter 9. (1)



(4 marks)

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3 The table shows the number of visitors, in thousands, to a museum in each quarter of 2024 and 2025.

Year	**2024**	**2024**	**2024**	**2024**	**2025**	**2025**	**2025**	**2025**
Quarter	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Visitors (thousands)	12	18	26	14	16	22	30	18

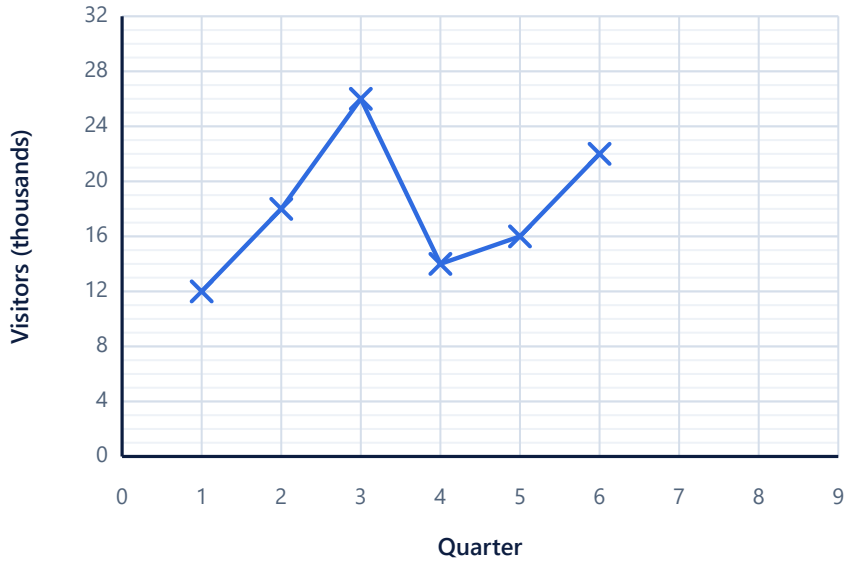
The first six values have been plotted on the time series graph. On the graph the quarters are numbered 1 to 8, so quarter 1 is Q1 of 2024 and quarter 5 is Q1 of 2025.

a. Complete the time series graph. (1)

b. Draw a trend line on the graph. (1)

c. Describe the trend in the number of visitors. (1)

d. Describe the seasonal variation in the number of visitors. (1)



(4 marks)

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4 The table shows the number of electric cars, in hundreds, registered in a town at the end of each year.

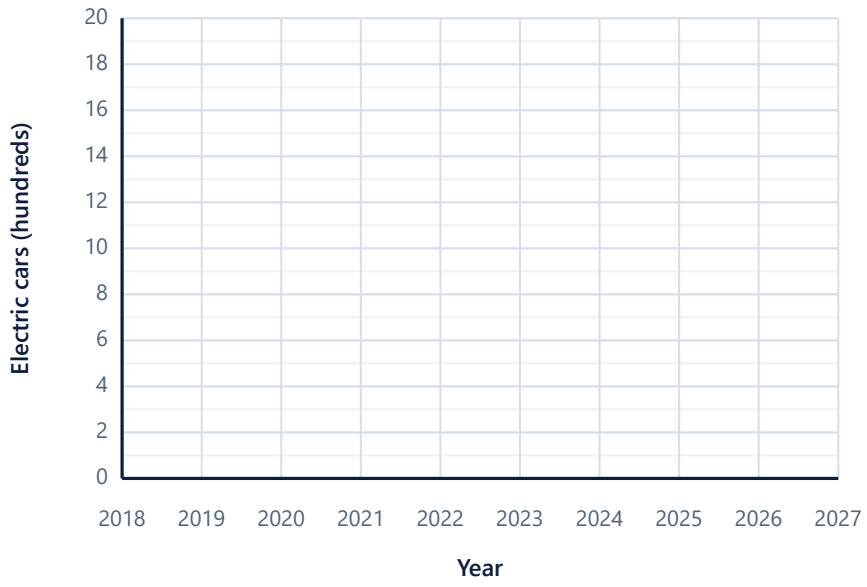
Year	2019	2020	2021	2022	2023	2024
Electric cars (hundreds)	3	5	6	9	10	13

a. On the grid, draw a time series graph for this information. (2)

b. Draw a trend line on your graph. (1)

c. Use your trend line to predict the number of electric cars registered in the town at the end of 2026. (1)

d. Give one reason why this prediction may not be reliable. (1)



(5 marks)

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5 A cafe opens on Friday, Saturday and Sunday. The table shows the number of customers on each day for three weeks.

Week	**1**	**1**	**1**	**2**	**2**	**2**	**3**	**3**	**3**
Day	Fri	Sat	Sun	Fri	Sat	Sun	Fri	Sat	Sun
Customers	60	90	75	70	100	85	80	110	95

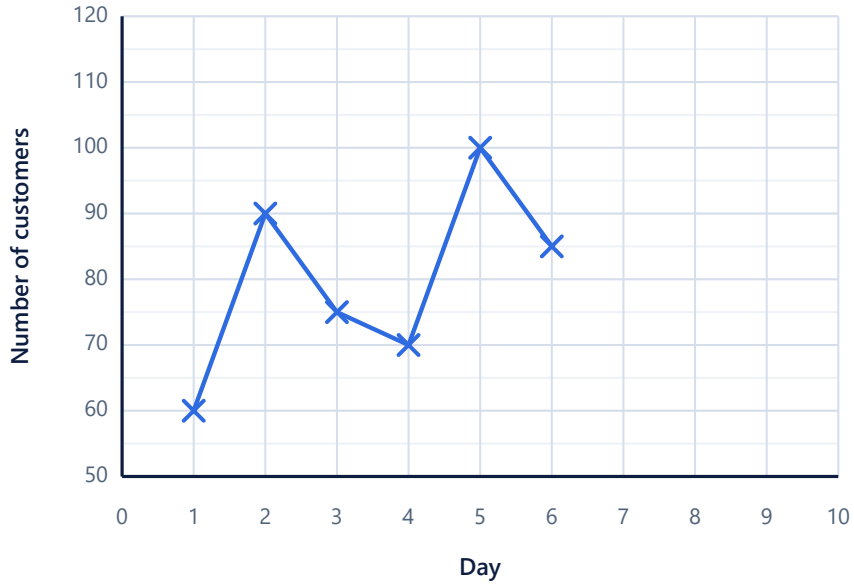
The first six values have been plotted on the time series graph. The days are numbered 1 to 9, so day 1 is Friday of week 1 and day 4 is Friday of week 2.

a. Complete the time series graph. (1)

b. Draw a trend line on the graph. (1)

c. Hugo says, "The number of customers fell from 75 on Sunday of week 1 to 70 on Friday of week 2, so the cafe is getting less popular." Explain why Hugo is wrong. (2)

d. Give one reason why the trend line may not give a reliable prediction for week 10. (1)



(5 marks)

End of questions | Total 21 marks

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