Statistics and data analysis - Practice test 2

Name: _____ Date: _____

16 questions | 43 marks | 55 minutes

A progressive review of summaries, displays, paired data and fair conclusions.

A scientific calculator may be used.

1. A data set has 7 measurements with mean 12. Four sum to 46 and the other two known values are 10 and 15. Find the seventh. [3 marks]

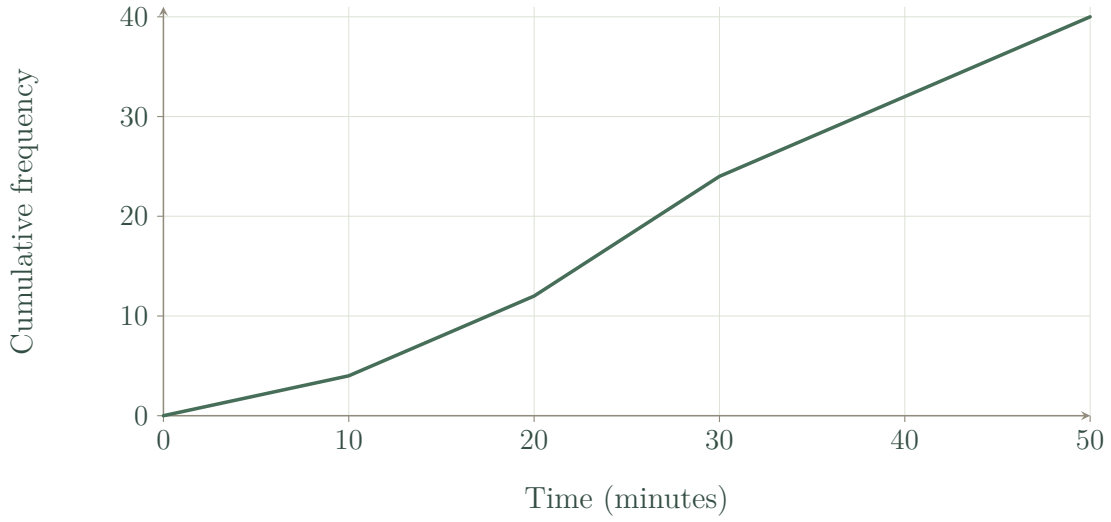
2. Find median, Q_1 and Q_3 for 4, 6, 7, 9, 10, 13, 14, 17, 20 using median-of-halves. [2 marks]

3. Find the range and IQR of the data in Question 2. [2 marks]

4. Draw a labelled box plot for the five-number summary 3, 6, 9, 13, 18 minutes. [3 marks]

5. An ordered sample has 25 values. Which nearest-rank position gives P_{90}? [2 marks]

6. Use the cumulative graph to estimate the 25th percentile. [3 marks]

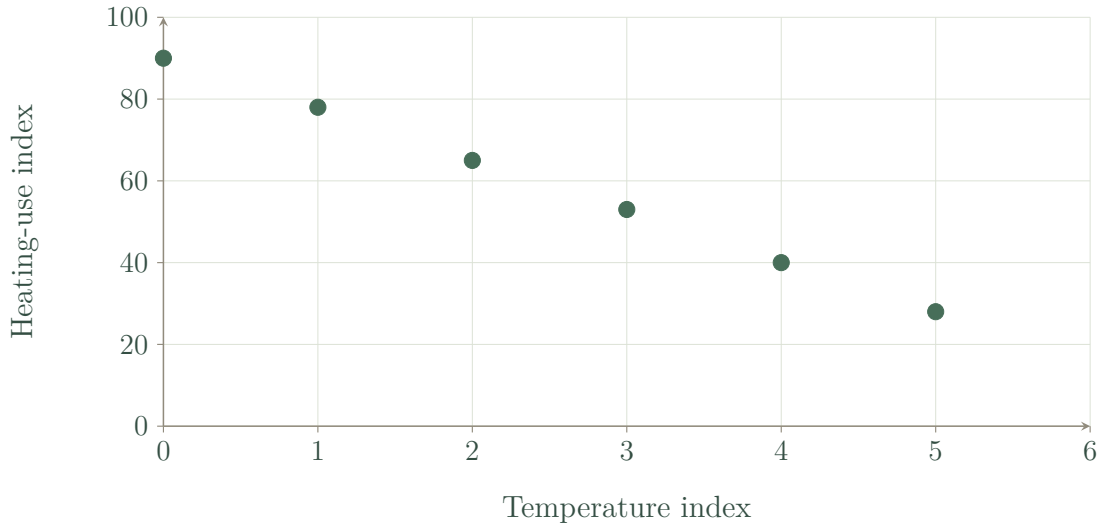


7. Find the population variance and SD of 2, 2, 6, 6. [3 marks]

8. A sample has $n = 6$ and squared-deviation total 45. Find its sample SD. [2 marks]

9. Explain why SD has the original unit whereas variance has a squared unit. [2 marks]

10. Describe the association shown in the plot. [3 marks]



11. A scatterplot has a strong U-shaped pattern. Is 'no association' an adequate description? [2 marks]

12. A survey links more screen time with less sleep. Give one possible confounder and a cautious conclusion. [3 marks]

13. Complete totals and find the percentage of cyclists who are inB. [4 marks]

Travel

Group	Cycle	Other
A	10	30
B	15	45

14. A class's mean rises after one very high score is added. Must the median also rise by the same amount? [2 marks]

15. A headline says shoplifting fell 50%, from 2 cases to 1. State what is correct and what is missing. [3 marks]

16. Design a short investigation of height and arm span, stating population, sampling, measurement and a limitation. [4 marks]