Topic test | Statistics

Statistics - Applications test

Name: _____ Date: _____

16 questions | 50 marks | 60 minutes

Use supplied school and community data to challenge claims and design defensible conclusions.

A scientific calculator may be used.

1. A museum surveys weekday morning visitors about evening opening. Name one group that may be under-represented. [2 marks]

2. A cycling club records route choice and travel time in minutes. Classify each variable. [2 marks]

3. Cycle times are 12,14,15,15,19 minutes. Find mean, median and range. [3 marks]

(a) Calculate the mean. [1 mark]

(b) Find the median and range. [2 marks]

4. A random sample finds 27 of 45 residents support a cycle lane. Estimate support among 800 residents. [3 marks]

5. A random sample of 30 is taken from 900 students. A student calls it useless because it is not a census. Give a balanced response. [2 marks]

6. The table shows extra practice sessions per week. Calculate mean and median. [4 marks]

Sessions	Frequency
0	5
1	8
2	5
3	2

(a) Calculate the mean. [2 marks]

(b) Find the median. [2 marks]

7. Compare A: 12,13,14,16,17 and B: 11,14,15,16,19 using median and range. [4 marks]

8. The ordered values are 14, 15, a two-digit number with tens digit 1 and units digit x, 20, 22. The median is 18. Find x. [3 marks]

9. Ticket sales rise from 120 to 132. A graph starts its vertical axis at 100. Calculate the actual percentage increase. [3 marks]

10. Service A has 12 complaints from 300 orders. B has 10 from 200. A claim says B is better because 10 is less than 12. Assess it. [3 marks]

11. One sample has 18 supporters out of 40; another has 25 out of 50. Find both percentages and their percentage-point difference. [3 marks]

12. Eight journey times have mean 12 minutes. Two more times,20 and 24 minutes, are added. Find the new mean. [3 marks]

13. Masses are 1.2,1.3,1.4,1.5,15 kg. The source confirms the last value should be 1.5 kg. Find the corrected mean and justify the change. [3 marks]

14. A: 10,11,12,13,14. B: 10,10,12,14,14. Both means are 12 and ranges 4. Explain why the groups are not identical. [3 marks]

15. Give two justified improvements to a voluntary lunchtime survey about a quiet study room, keeping it practical and respectful. [3 marks]

16. Waiting times before and after a queue change are supplied. Calculate each mean, median and range, then assess the claim that every visitor now waits less. [6 marks]

Different visitors were observed in the two samples.

Before(min)	After(min)
8	7
9	8
9	8
10	10
14	12

(a) Summarise the before sample using mean, median and range. [2 marks]

(b) Summarise the after sample the same way. [2 marks]

(c) Assess the claim that every visitor now waits less. [2 marks]