



S24-test Stem and Leaf Diagrams: Test Pack

EDEXCEL 1ST0 · Calculator allowed · about 15 minutes

Total Marks

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

- 1 In a stem-and-leaf diagram of match attendances (stem = hundreds of spectators, so a leaf of 3 in the stem 4 row represents 430 spectators), the entry 6 | 8 represents an attendance of:

- ☐ A) 680
☐ B) 68
☐ C) 6.8
☐ D) 86

(Total for Question 1 is 1 mark)

- 2 The stem-and-leaf diagram shows the number of books read in a year by each of 14 members of a library reading group.

Stem	Leaf
0	4 6 6 7 9
1	1 2 5 5 8
2	0 0 0 4

Key: 1 | 2 means 12 books

- (a) Write down the mode of the number of books read. (1)

.....

- (b) Write down the number of members who read at least 15 books. (2)

.....

(Total for Question 2 is 3 marks)

3 Amir is planning a statistical investigation into how long Year 11 students spend on homework each week. He plans to collect data from a sample of students and process it using a stem-and-leaf diagram before interpreting the results.

(a) Give one reason why a stem-and-leaf diagram is a useful way to process this raw data, compared with leaving it as an unsorted list. **(1)**

(b) Amir collects these times, in hours, from 15 students: **(3)**

3, 9, 12, 6, 17, 4, 10, 8, 19, 14, 4, 11, 9, 12, 5

Construct an ordered stem-and-leaf diagram for this data. Include a key.

(c) Find the median time spent on homework. **(2)**

(d) Comment on what the shape of the diagram suggests about the distribution of homework times, and state whether the mean would be higher or lower than the median. **(2)**

(Total for Question 3 is 8 marks)

- 4** A stem-and-leaf diagram shows the ages, in years, of 9 people at a craft workshop. Eight of the leaves are shown below; the ninth (in the stem 4 row) is smudged and cannot be read.

1 | 8 9
2 | 5 8
3 | 1 2 7
4 | 0 ?

Key: 3 | 1 means 31 years old

The mean age of all 9 people is exactly 31 years. Work out the missing age.

(Total for Question 4 is 3 marks)

Mark scheme · S24-test Stem and Leaf Diagrams: Test Pack

Question 1

- **B1** A cao
- **Answer: A) 680**

Question 2

- (a) **B1** 20 cao
- (a) **Answer: 20**
- (b) **M1** correctly identifies all values 15 or more across the relevant rows
- (b) **A1** 7 cao
- (b) **Answer: 7**

Question 3

- (a) **B1** valid reason, e.g. it reveals the shape/spread of the data while keeping every original value, oe
- (a) **Answer: It shows the shape and spread of the data while keeping the exact original values.**
- (b) **M1** stems 0 and 1 used with all 15 values placed (allow up to one misplaced leaf)
- (b) **A1** leaves 3 4 4 5 6 8 9 9 | 0 1 2 2 4 7 9 all correctly ordered, cao
- (b) **B1** correct key given, e.g. 1 | 0 means 10 hours
- (b) **Answer: 0 | 3 4 4 5 6 8 9 9 1 | 0 1 2 2 4 7 9 Key: 1 | 0 means 10 hours**
- (c) **M1** identifies the 8th of 15 ordered values
- (c) **A1** 9 cao
- (c) **Answer: 9 hours**
- (d) **B1** identifies positive skew: most times are clustered low (0-9 hours) with a smaller number of much higher values stretching the tail up to 19 hours, oe
- (d) **B1** correctly states the mean would be higher than the median because of the stretched upper tail
- (d) **Answer: The distribution is positively skewed (most values cluster low, with a long tail of high values), so the mean would be higher than the median.**

Question 4

- **M1** $9 \times 31 (= 279)$, oe (total of all 9 ages from the mean)
- **M1** $279 - (18+19+25+28+31+32+37+40)$, oe (subtracts the sum of the 8 known ages)
- **A1** 49 cao
- **Answer: 49 years**