



S24-30min Stem and Leaf Diagrams: 30-minute Pack

EDEXCEL 1ST0 · Calculator allowed · about 30 minutes

Total Marks

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

- 1** The stem-and-leaf diagram shows the number of text messages sent in one day by each student in a small tutor group.

Stem	Leaf
0	3 7 7 9
1	2 4 4 8
2	1

Key: 1 | 2 means 12 texts sent

- (a) Write down the total number of students in the tutor group shown on the diagram. (1)

.....

- (b) Find the median number of texts sent. (2)

.....

(Total for Question 1 is 3 marks)

- 2 The stem-and-leaf diagram shows the test scores, out of 50, of 10 students.

Stem	Leaf
2	2 5 7 7
3	1 3 6 8
4	1 5

Key: 3 | 1 means a score of 31

- (a) Work out the range of the scores. (2)

- (b) Find the median score. (2)

(Total for Question 2 is 4 marks)

- 3** The stem-and-leaf diagram shows the 100m sprint times, in seconds, of 13 athletes. The stem is the whole number of seconds and the leaf is the first decimal place.

Stem	Leaf
11	2 5 5 8
12	0 1 3 3 6 9
13	0 4 7

Key: 12 | 3 means 12.3 seconds

- (a) Find the median sprint time. (2)

-
(b) Write down the number of athletes with a time faster than 12.0 seconds. (1)

-
(c) Work out the range of the sprint times. (2)

.....
(Total for Question 3 is 5 marks)

- 4 The stem-and-leaf diagram shows the distance, in km, driven by 12 delivery drivers in one week. Because the distances run into the hundreds, each leaf here is a two-digit number (the last two digits of the distance) and the stem is the first digit.

Stem	Leaf
2	05 15 18 27 34 41 45 56 68
3	12 25 40

Key: 3 | 12 means 312 km

- (a) Using the key, write down the distance represented by the leaf 34 in the stem 2 row. (1)

.....

- (b) Find the median distance travelled. (2)

.....

- (c) Work out the range of the distances. (2)

.....

(Total for Question 4 is 5 marks)

- 5 A gym manager claims: "Most members of Tuesday's fitness class are under 30 years old." The stem-and-leaf diagram shows the ages of the 16 people in the class.

Stem	Leaf
1	8 9
2	2 4 5 7 8 9
3	1 3 5 6
4	1 4 7
5	2

Key: 2 | 4 means 24 years old

(Total for Question 5 is 3 marks)

- 6 The stem-and-leaf diagram shows the weekly petrol spend, in pounds (£), of 19 households.

Stem	Leaf
2	2 5 8
3	1 3 5 8
4	1 4 6 9
5	2 4 7
6	0 3 6 9
7	2

Key: 3 | 1 means a weekly spend of £31

- (a) Find the lower quartile of the weekly petrol spend. (2)

-
(b) Find the upper quartile of the weekly petrol spend. (2)

-
(c) Hence find the interquartile range of the weekly petrol spend. (1)

.....
(Total for Question 6 is 5 marks)

- 7 The stem-and-leaf diagram shows the finishing times, in minutes, of 15 runners in a fun run. The stem is whole minutes and the leaf is the first decimal place.

Stem	Leaf
26	3
27	1
28	5
29	0 4
30	1 6
31	2 8
32	5
33	0 7
35	4
37	2
39	8

Key: 29 | 4 means 29.4 minutes

- (a) Find the interquartile range of the finishing times. (3)

- (b) Write down the range of the finishing times. (2)

- (c) Describe the skew of the distribution shown by the diagram, and state the effect this would have on the mean compared with the median. (2)

(Total for Question 7 is 7 marks)

Mark scheme · S24-30min Stem and Leaf Diagrams: 30-minute Pack

Question 1

- (a) **B1** 9 cao
- (a) **Answer: 9**
- (b) **M1** identifies the 5th of 9 ordered values
- (b) **A1** 12 cao
- (b) **Answer: 12**

Question 2

- (a) **M1** 45 - 22, oe
- (a) **A1** 23 cao
- (a) **Answer: 23**
- (b) **M1** identifies the two middle values 31 and 33 (5th and 6th of 10 ordered values)
- (b) **A1** 32 cao
- (b) **Answer: 32**

Question 3

- (a) **M1** identifies the 7th of 13 ordered values
- (a) **A1** 12.3 cao
- (a) **Answer: 12.3 seconds**
- (b) **B1** 4 cao
- (b) **Answer: 4**
- (c) **M1** 13.7 - 11.2, oe
- (c) **A1** 2.5 cao
- (c) **Answer: 2.5 seconds**

Question 4

- (a) **B1** 234 cao
- (a) **Answer: 234 km**
- (b) **M1** identifies the two middle values 241 and 245 (6th and 7th of 12 ordered values)
- (b) **A1** 243 cao
- (b) **Answer: 243 km**
- (c) **M1** 340 - 205, oe
- (c) **A1** 135 cao
- (c) **Answer: 135 km**

Question 5

- **M1** correctly counts the members under 30 (stem 1 and stem 2 rows: $2 + 6 = 8$)
- **M1** 8 out of 16, oe (=50%)
- **A1** correct, justified conclusion: exactly half are under 30, so 'most' is not correct, since half is not a majority
- **Answer: 8 out of 16 (50%) are under 30, so the manager's claim is not correct - half is not 'most'.**

Question 6

- (a) **M1** identifies the $(19+1)/4 = 5$ th of 19 ordered values
- (a) **A1** £33 cao
- (a) **Answer: £33**
- (b) **M1** identifies the $3(19+1)/4 = 15$ th of 19 ordered values
- (b) **A1** £60 cao
- (b) **Answer: £60**
- (c) **B1** £27 cao, ft from (a) and (b)
- (c) **Answer: £27**

Question 7

- (a) **M1** identifies the lower quartile as the $(15+1)/4 = 4$ th value, 29.0
- (a) **M1** identifies the upper quartile as the $3(15+1)/4 = 12$ th value, 33.7
- (a) **A1** 4.7 cao
- (a) **Answer: 4.7 minutes**
- (b) **M1** $39.8 - 26.3$, oe
- (b) **A1** 13.5 cao
- (b) **Answer: 13.5 minutes**
- (c) **B1** identifies positive skew: most times cluster between 26 and 34 minutes, with a small number of much slower runners stretching the tail towards 40 minutes, oe
- (c) **B1** correctly states the mean would be higher than the median because of the pull from the few large values
- (c) **Answer: Positive skew (long tail of slow times); the mean would be higher than the median.**