

GCSE Maths: Stem-and-leaf diagrams (Foundation): answers

GCSE Maths - Statistics - Foundation - Lesson 24.9

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question are free at websink.site/gcse/maths/ch24-statistics/foundation/stem-and-leaf-diagrams/

Exercise 24I Stem-and-leaf diagrams Non-calculator

- 1 The ages of 12 people at a party are: 23, 31, 19, 42, 35, 27, 31, 45, 22, 38, 29, 51. Draw an ordered stem-and-leaf diagram.

Answer:

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

Key: 2 | 3 means 23 years

- 2 The heights, in cm, of 15 students are: 152, 147, 161, 158, 143, 166, 150, 155, 149, 163, 157, 171, 160, 154, 148. Draw an ordered stem-and-leaf diagram with the stems 14, 15, 16 and 17.

Answer:

Stem	Leaf
14	3 7 8 9
15	0 2 4 5 7 8
16	0 1 3 6
17	1

Key: 15 | 2 means 152 cm

- 3 The stem-and-leaf diagram shows the number of points scored by 15 players in a season.

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

Key: 2 | 3 means 23 points

- (a) How many values are more than 30? (b) Find the mode. (c) Find the median. (d) Find the range.

- (a) Values more than 30

Answer: 6

- (b) Mode

Answer: 23

- (c) Median

Answer: 28

- (d) Range

Answer: 33

- 4 The masses, in kg, of nine parcels are shown.

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

Key: 1 | 2 means 1.2 kg

Work out (a) the median, (b) the mode and (c) the range of the masses.

- (a) Median

Answer: 2.3 kg

- (b) Mode

Answer: 2.3 kg

- (c) Range

Answer: 2.2 kg

- 5 The back-to-back diagram shows the scores of nine boys and ten girls.

Boys	Stem	Girls
	2	8
8 5 2	3	1 3 6 8 9
7 5 4 1	4	2 3 6 9
5 2	5	

Key: for boys 4 | 1 means 41; for girls 1 | 3 means 31

(a) Find the median score for each group. (b) Find the range for each group. (c) Compare the scores.

- (a) Medians

Answer: Boys 44, girls 38.5

- (b) Ranges

Answer: Boys 23, girls 21

(c) Comparison

Answer: The boys scored higher on average (median 44 compared with 38.5), and the spreads were similar (23 and 21).

- 6 Look at this stem-and-leaf diagram for the ages of six people: 2 | 8 3 1, 3 | 5 2, 4 | 9. Give two things that are wrong with it.

Answer: The leaves are not in order, and there is no key.

- 7 Work out the mean of the 12 ages in the first question of this exercise: 23, 31, 19, 42, 35, 27, 31, 45, 22, 38, 29, 51. Give your answer to 1 decimal place.

Answer: 32.8

- 8 Write down the original list of data shown by this stem-and-leaf diagram.

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

Key: 6 | 1 means 61 cm

Answer: 61, 64, 68, 70, 73, 73, 79, 85

- 9 Maya says: "A stem-and-leaf diagram is better than a grouped frequency table if you want the exact median." Is she right? Explain.

Answer: Yes: the diagram keeps every value, so the exact median can be read; a grouped table only shows which class it is in.

- 10 A stem-and-leaf diagram for 11 values is shown.

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

Key: 1 | 2 means 12

Show that the mean is greater than the median.

Answer: Mean 24 is greater than median 21

- 11 The scores of the students in two groups are: Group X: 22, 27, 31, 35, 38, 44, 46. Group Y: 25, 29, 32, 33, 40, 41, 48, 50. Draw a back-to-back stem-and-leaf diagram with Group X on the left.

Answer:

Group X	Stem	Group Y
7 2	2	5 9
8 5 1	3	2 3
6 4	4	0 1 8
	5	0

Key: for Group X 3 | 1 means 31; for Group Y 3 | 2 means 32

- 12** The stem-and-leaf diagram shows the lengths of eight snakes, in metres.

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

Key: 1 | 2 means 1.2 m

Show that the median length is 2.45 m.

Answer: 2.45 m