# Stem and leaf diagrams

Grade 3 | Worked solutions

**GCSE Statistics topic practice**

**1** The stem and leaf diagram shows the time, in minutes, that each of 11 customers waited at a garage.

Key: 1 | 2 means 12 minutes

a. How many customers waited for less than 10 minutes? (1)

b. Write down the longest time a customer waited. (1)

c. Work out the range of the times. (1)

| | |
|---|---|
| 0 | 5 8 9 |
| 1 | 2 4 4 7 |
| 2 | 0 3 6 |
| 3 | 1 |

(3 marks)

a) the 0 row is 5, 8 and 9 minutes

3 customers

b) the last leaf in the diagram

31 minutes

c) range = longest - shortest

31 - 5 = 26

a) 3 b) 31 minutes c) 26 minutes

**2** Here are the marks of 15 students in a spelling test.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 23 | 31 | 18 | 27 | 35 | 12 | 42 | 29 |
| 40 | 33 | 27 | 16 | 38 | 21 | 34 | |

a. Complete the ordered stem and leaf diagram for these marks. Include a key. (3)

b. Write down the mode of the marks. (1)

| | |
|---|---|
| 1 | 2 6 8 |
| 2 | 1 3 7 7 9 |
| 3 | 1 3 4 5 8 |
| 4 | 0 2 |

Key: 1 | 2 means 12 marks

(4 marks)

a) tens digit is the stem, leaves in order

1 row 2, 6, 8


Free for classroom and home use: print, photocopy and share. Not for resale or re-hosting.

2 row 1, 3, 7, 7, 9

3 row 1, 3, 4, 5, 8

4 row 0, 2

check there are 15 leaves

$3 + 5 + 5 + 2 = 15$

Key 1 then 2 means 12 marks

b) the 2 row has the leaf 7 twice

mode = 27

a) see diagram b) 27

**3** The stem and leaf diagram shows the ages, in years, of the members of a walking club.

| | |
|---|---|
| 2 | 4 7 9 |
| 3 | 1 5 5 8 |
| 4 | 0 2 6 6 6 9 |
| 5 | 3 7 |

Key: 2 | 4 means 24 years

a. How many members does the club have? (1)

b. Write down the mode. (1)

c. Find the median age. (1)

d. Work out the range of the ages. (1)

(4 marks)

a) count the leaves

$3 + 4 + 6 + 2 = 15$

b) the leaf 6 appears 3 times in the 4 row

mode = 46

c) position of the median

$(15 + 1) \div 2 = 8$

24, 27, 29, 31, 35, 35, 38, 40

The 8th value is 40

d) range = highest - lowest

$57 - 24 = 33$

a) 15 b) 46 c) 40 d) 33


Free for classroom and home use: print, photocopy and share. Not for resale or re-hosting.

**4** Hassan measures the heights of 16 seedlings. The stem and leaf diagram shows his results.

Key: 3 | 2 means 3.2 cm

a. Find the median height. (2)

b. Seedlings taller than 5 cm are ready to be planted outside.
Work out the percentage of the seedlings that are ready. (2)

| | |
|---|---|
| 3 | 2 6 8 9 |
| 4 | 1 3 5 5 7 9 9 |
| 5 | 0 2 7 |
| 6 | 1 3 |

(4 marks)

a) position of the median

$(16 + 1) \div 2 = 8.5$

Halfway between the 8th and 9th values

8th value = 4.5 and 9th value = 4.7

$(4.5 + 4.7) \div 2 = 4.6$

b) taller than 5 cm

5.2, 5.7, 6.1, 6.3 so 4 seedlings

5.0 cm is not taller than 5 cm

$\frac{4}{16} \times 100 = 25\%$

**a) 4.6 cm b) 25%**

**5** The stem and leaf diagram shows the number of text messages sent by each of 11 students in one week. The largest value has a leaf missing. The range of the numbers of messages is 36

Key: 2 | 3 means 23 messages

a. Work out the missing value and complete the diagram. (2)

b. Find the median. (1)

c. Sam says, "More than half of the students sent over 40 messages."
Is Sam correct? Show how you decide. (2)

| | |
|---|---|
| 2 | 3 7 |
| 3 | 0 4 8 8 |
| 4 | 1 5 6 |
| 5 | 2 9 |

(5 marks)

a) Largest = smallest + range

$23 + 36 = 59$


Free for classroom and home use: print, photocopy and share. Not for resale or re-hosting.

The missing leaf is 9 in the 5 row

b) position of the median

$(11 + 1) \div 2 = 6$

23, 27, 30, 34, 38, 38

The 6th value is 38

c) values over 40

41, 45, 46, 52, 59 so 5 students

$11 \div 2 = 5.5$

5 is less than 5.5 so Sam is not correct

a) 59 b) 38 c) no, only 5 out of 11


Free for classroom and home use: print, photocopy and share. Not for resale or re-hosting.