



- 1 The stem and leaf diagram shows the masses, in grams, of some tomatoes.

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

Key: 2 | 1 = 21 grams

Find the range of the masses.

(2 marks)

The smallest mass is 21 grams and the largest mass is 47 grams

Range

$$47 - 21 = 26 \text{ grams}$$

26 grams

- 2 The stem and leaf diagram shows the number of minutes 13 students spent reading last night.

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

Key: 1 | 2 = 12 minutes

a. How many students read for more than 20 minutes?

b. Write down the mode.

c. Write down the longest time.

(3 marks)

a)

21, 24, 26, 30, 33, 38

6 students

b)

1 | 5 appears twice

Mode = 15 minutes

c)

Last row: 3 | 8

38 minutes

- 3 Here are the ages, in years, of 15 people at a family party.

23 31 8 17 25 36 12 29 34 15 21 9 27 33 18

Draw an ordered stem and leaf diagram for these ages. Include a key.

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

Key: 1 | 2 = 12 years

(3 marks)

Use the tens digit as the stem and the units digit as the leaf

Order the leaves in each row: 0 | 8 9, then 1 | 2 5 7 8, then 2 | 1 3 5 7 9, then 3 | 1 3 4 6

Check the count

$$2 + 4 + 5 + 4 = 15 \text{ values}$$

Include a key such as 1 | 2 = 12 years

- 4 The stem and leaf diagram shows the number of customers in a shop on each of 13 days.

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

Key: 1 | 2 = 12 customers

Find the median number of customers.

(3 marks)

There are 13 values, so the median is the 7th value when the data is in order

Counting through the leaves in order: 12, 13, 17, 20, 24, 25, 28, ..

The 7th value is 28, so the median is 28 customers

28

- 5 Here are the masses, in kg, of 12 parcels.

2.4 3.1 1.8 2.9 3.5 2.2 1.5 3.3 2.7 1.9 3.0 2.5

- Draw an ordered stem and leaf diagram for these masses. Include a key.
- Find the median mass.

(4 marks)

a)

Stems: 1, 2, 3. Leaves: tenths

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

Key: 1 | 5 = 1.5 kg

b)

12 values, so between the 6th and 7th

$$6^{\text{th}} = 2.5 \quad 7^{\text{th}} = 2.7$$

$$(2.5 + 2.7) \div 2 = 2.6$$

2.6 kg

6 Here are the times, in seconds, that 14 swimmers took to swim one length of a pool.

42 57 61 45 53 68 44 50 62 59 47 55 66 51

Draw an ordered stem and leaf diagram for these times. Include a key.

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

Key: 4 | 2 = 42 seconds

(3 marks)

Use the tens digit as the stem and the units digit as the leaf

Order the leaves in each row: 4 | 2 4 5 7, then 5 | 0 1 3 5 7 9, then 6 | 1 2 6 8

Check the count

$$4 + 6 + 4 = 14 \text{ values}$$

Include a key such as 4 | 2 = 42 seconds

7 Nine students in Class P and nine students in Class Q sat the same test, marked out of 50.

Class P

Stem	Leaves
1	2 8
2	1 5 7
3	1 4 8
4	5

Class Q

Stem	Leaves
2	2 4 8
3	0 1 3 5 7
4	1

Key: 2 | 1 = 21 marks

- Find the median and the range for each class.
- Compare the marks of the two classes.

(5 marks)

a)

P: 9 values, median is the 5th = 27

$$\text{range} = 45 - 12 = 33$$

Q: 9 values, median is the 5th = 31

$$\text{range} = 41 - 22 = 19$$

b)

Median: Q higher (31 > 27), so Q better on average

Range: Q smaller (19 < 33), so Q more consistent

Q did better and was more consistent

- 8 The stem and leaf diagram shows the number of press-ups 11 students did in one minute.

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

Key: 1 | 1 = 11 press-ups

- Find the median number of press-ups.
- Find the range of the number of press-ups.

(3 marks)

a) There are 11 values, so the median is the 6th value: 6, 8, 11, 13, 15, 17, ... The median is 17

b) Range

$$28 - 6 = 22$$

- 9 The stem and leaf diagram shows the ages of the 20 members of a chess club.

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

Key: 1 | 4 = 14 years

A member is chosen at random. Sam says, "The probability that the member is aged 40 or over is $\frac{1}{4}$ because one of the four rows is for the 40s."

- Explain why Sam is wrong.
- Work out the correct probability that the member is aged 40 or over. Give your answer as a fraction in its simplest form.

(3 marks)

a)

Rows have different numbers of leaves

The probability uses members, not rows

b)

40s row: 41, 43, 47 → 3 members

$$\text{Total} = 4 + 6 + 7 + 3 = 20$$

$$\boxed{\frac{3}{20}}$$

- 10 Here are the heights, in centimetres, of 15 sunflower plants.

132 145 128 150 141 136 129 147 153 138 144 131 149 140 135

- Draw an ordered stem and leaf diagram for these heights. Include a key.
- Find the median height.

Stem	Leaf
12	8 9
13	1 2 5 6 8
14	0 1 4 5 7 9
15	0 3

Key: 12 | 8 = 128 cm

(4 marks)

a) Use stems 12, 13, 14, 15 (the hundreds and tens digits) with the units digit as the leaf

Ordered rows

12 | 8 9, then 13 | 1 2 5 6 8, then 14 | 0 1 4 5 7 9, then 15 | 0 3. Check: 2 + 5 + 6 + 2 = 15 values.

Key: 12 | 8
= 128 cm

b) The median is the 8th of 15 values: 128, 129, 131, 132, 135, 136, 138, 140, ..

The median height is 140 cm

11 20 players each scored points in a darts game. Here are their scores.

12 45 23 38 41 17 29 34 47 21 36 43 15 27 32 49 24 39 44 30

a. Draw an ordered stem and leaf diagram for these scores. Include a key.

b. One of the 20 players is chosen at random. Find the probability that the player scored 40 points or more. Give your answer as a fraction in its simplest form.

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

Key: 1 | 2 = 12 points

(5 marks)

a) Ordered rows

1 | 2 5 7, then 2 | 1 3 4 7 9, then 3 | 0 2 4 6 8 9, then 4 | 1 3 4 5 7 9. Check: $3 + 5 + 6 + 6 = 20$

values.

Key: 1

| 2 =

12

points

b) Scores of 40 or more are the stem-4 row: 41, 43, 44, 45, 47, 49, which is 6 players

Probability

$$\frac{6}{20} = \frac{3}{10}$$