Stem & Leaf Diagrams

Read a stem and leaf diagram

Draw a stem and leaf diagram

Vocabulary

Mean
An average found by adding together all of the numbers in a list and dividing the result by how many numbers are in the list.

Median
The middle number when a list is put into ascending order.

Mode
The most common number or item in a list.

Range
The result of subtracting the smallest number in a list from the largest number.

Example

The ordered stem and leaf diagram shows the time taken by some students to travel to college.

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

Key: 3 | 7 = 37 minutes

a) How many students are shown in the diagram?

b) What was the longest journey time for any student?

c) What was the modal journey time?

d) What was the median journey time?

e) What was the mean journey time?

f) What was the range of journey times?

Solutions

The ordered stem and leaf diagram shows the time taken by some students to travel to college.

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

Key: 3 | 7   = 37 minutes

a) How many students are shown in the diagram? **20**

b) What was the longest journey time for any student?   **62 minutes**

c) What was the modal journey time?
   48 minutes

d) What was the median journey time?
   40 minutes

e) What was the mean journey time?
   38.9 minutes

f) What was the range of journey times?
   51 minutes

You try...

Some pupils took a mathematics assessment.

Their scores (out of 40 marks) are shown below.

1   4   4   7   7   7   10   12   13   19

20   21   26   29   30   34   36   36   37   40

Copy and complete the ordered stem and leaf diagram.

0	1 4 4 7 7 7
1	
2	
3	
4	

Key :

Solution

Some pupils took a mathematics assessment.

Their scores out of 40 marks are shown below.

1   4   4   7   7   7   10   12   13   19

20   21   26   29   30   34   36   36   37   40

0	1	4	4	7	7	7
1	0	2	3	9		
2	0	1	6	9		
3	0	4	6	6	7	
4	0					

Key: 2 | 4   = 24 marks

Exercise

The data below shows the number of people who visited a dentist each day in a two week period.

Draw an ordered stem and leaf diagram to display the data

15 , 17 , 18 , 18 , 19 , 20 , 20 ,

22 , 25 , 27 , 29 , 30 , 32 , 38

The data below shows the number of ice creams sold by a café on twenty days last month.

Draw an ordered stem and leaf diagram to display the data

6 , 15 , 18 , 10 , 22 33 , 15 ,

9 , 12 , 16 , 15 , 9 , 31 , 22 ,

19 , 29 , 7 , 24 , 21 , 30

At an athletics meeting, elite runners recorded their times in seconds in a 200m sprint

Draw an ordered stem and leaf diagram to display the data

23.1 , 22.9 , 23.7 , 22.9 ,

21.9 22.5 , 22.2 , 22.6

Solutions

The data below shows the number of people who visited a dentist each day in a two week period.

15 , 17 , 18 , 18 , 19 20 ,
20 , 22 , 25 , 27 29 , 30 ,
32 , 38

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

Key : 2 | 2 means 22 people

The data below shows the sales of ice creams in twenty cafes.

6 , 15 , 18 , 10 , 22 33 , 15 , 9 ,

12 , 16 , 15 , 9 , 31 , 22 , 19 , 29 ,

7 , 24 , 21 , 30

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

Key : 1 | 5 means 15 sales

At an athletics meeting, elite runners recorded their times in seconds in a 200m sprint.

23.1 , 22.9 , 23.7 , 22.9
, 21.9 22.5 , 22.2 , 22.6

21	9
22	2	5	6	9	9
23	1	7

Key : 22 | 6 means 22.6 s

Extension

In a maths assessment, pupils can score a maximum of 40 marks
A teacher wants to compare the performance of boys and girls in the assessment.

Copy and complete the back-to-back stem & leaf diagram.

Girls Scores	Boys Scores
7 , 19 , 26 , 35 ,	5 , 10 , 28 , 33 ,
6 , 18 , 26 , 33 ,	40 , 13 , 28 , 36 ,
18 , 25 , 33 , 14 ,	22 , 19 , 40 , 38 ,
25 , 33 , 11 , 25 ,	29 , 31 , 2 , 37 ,
32 , 22 , 31 , 30	33 , 36 , 35 , 36

Girls Scores		Boys Scores
7 6	0	2 5
	1	
	2	
	3	
	4	

Solution

Girls Scores	Boys Scores
7 , 19 , 26 , 35 ,	5 , 10 , 28 , 33 ,
6 , 18 , 26 , 33 ,	40 , 13 , 28 , 36 ,
18 , 25 , 33 , 14 ,	22 , 19 , 40 , 38 ,
25 , 33 , 11 , 25 ,	29 , 31 , 2 , 37 ,
32 , 22 , 31 , 30	33 , 36 , 35 , 36

Girls Scores		Boys Scores
7 6	0	2 5
9 8 8 4 1	1	0 3 9
6 6 5 5 5 2	2	2 8 8 9
5 3 3 3 3 2 1 0	3	1 3 5 6 6 6 7 8
	4	0 0

Key: 2 │ 3 │ 4   represents: Girl 32   Boy 34

Here are the marks 20 students got in a Science test.

77	84	82	67	80
65	70	82	74	91
86	68	80	70	95
77	80	70	71	77

a) Display this information in an ordered stem and leaf diagram.
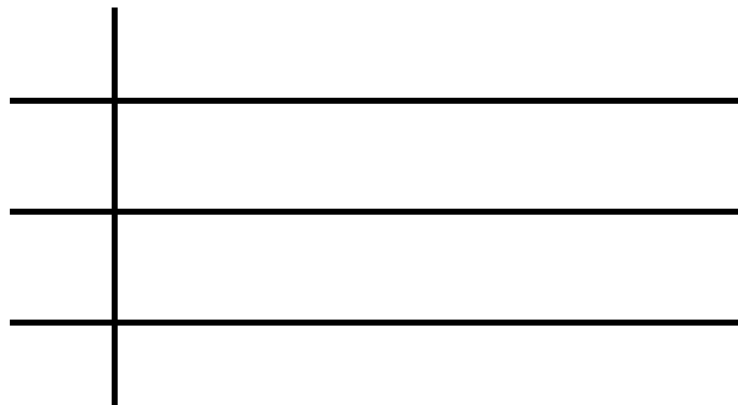
One of the students is chosen at random.

The pass mark for the test is 75.

b) Write down the probability that this student failed the Science test.

Here are the marks 20 students got in a Science test.

77   84   82   67   80   65   70   82   74   91

86   68   80   70   95   77   80   70   71   77

a) Display this information in an ordered stem and leaf diagram.

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

Key:

7 | 1 means 71 marks

One of the students is chosen at random.

The pass mark for the test is 75.

b) Write down the probability that this student failed the Science test. $\dfrac{8}{20}$