# 2.16 Stem and Leaf: Test Pack

EDEXCEL 1MA1 · Calculator allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

**Answer ALL questions. Show all your working.**

**1** The stem and leaf diagram shows the times, in seconds, taken by 15 runners.

| | |
|---|---|
| **3** | **1 2 3 5 7** |
| 4 | 4 4 |
| 5 | 0 2 |
| 6 | 0 0 1 2 5 7 |

Key: 2 | 3 means 23

Work out the mean. Give your answer correct to 1 decimal place.

**(Total for Question 1 is 2 marks)**

**2** The stem and leaf diagram shows the times, in seconds, taken by 15 runners.

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

Key: 2 | 3 means 23

Work out the range.

**(Total for Question 2 is 2 marks)**


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**3** The stem and leaf diagram shows the times, in seconds, taken by 13 runners.

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

Key: 2 | 3 means 23

Work out the mean. Give your answer correct to 1 decimal place.

**(Total for Question 3 is 2 marks)**

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**4** The stem and leaf diagram shows the heights, in cm, of 12 plants.

| | |
|---|---|
| **1** | **0 2 3 7 7 7** |
| 2 | 0 2 |
| 3 | 1 2 3 8 |

Key: 2 | 3 means 23

How many plants are taller than 27 cm? What fraction of all the plants is this? Give the fraction in its simplest form.

**(Total for Question 4 is 3 marks)**


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**5** The stem and leaf diagram shows the times, in seconds, taken by 15 runners.

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

Key: 2 | 3 means 23

Work out the range.

**(Total for Question 5 is 2 marks)**

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**6** The stem and leaf diagram shows the times, in seconds, taken by 11 runners.

| | |
|---|---|
| **1** | **2 6 6 8 8** |
| 2 | 2 4 |
| 3 | 5 7 8 |
| 4 | 3 |

Key: 2 | 3 means 23

Work out the mean. Give your answer correct to 1 decimal place.

**(Total for Question 6 is 2 marks)**

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**7** The stem and leaf diagram shows the heights, in cm, of 12 plants.

| | |
|---|---|
| **2** | **0 0 3 5** |
| 3 | 0 5 9 |
| 4 | 4 4 5 6 7 |

Key: 2 | 3 means 23

How many plants are taller than 39 cm? What fraction of all the plants is this? Give the fraction in its simplest form.

**(Total for Question 7 is 2 marks)**


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**8** The stem and leaf diagram shows the heights, in cm, of 8 plants.

| 2 | 6 |
|---|---|
| 3 | 2 3 4 6 |
| 4 | 3 5 5 |

Key: 2 | 3 means 23

How many plants are taller than 29 cm? What fraction of all the plants is this? Give the fraction in its simplest form.

**(Total for Question 8 is 2 marks)**

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**9** Given the stem and leaf diagram for test scores:

| Stem | Leaf |
|---|---|
| 4 | 6 8 |
| 5 | 0 2 7 |
| 6 | 1 |

Write down the largest score.

**(Total for Question 9 is 1 mark)**

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**10** A stem and leaf diagram shows the number of books read by students:

| Stem | Leaf |
|---|---|
| 0 | 4 6 |
| 1 | 2 3 9 |

How many students are shown in the diagram?

**(Total for Question 10 is 1 mark)**


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**11** Here is part of a stem and leaf diagram for temperatures (degrees Celsius):

| Stem | Leaf |
|---|---|
| 2 | 3 5 9 |
| 3 | 0 _ |

One value is missing from the leaf for stem 3. The full data set is {23, 25, 29, 30, 33}. Fill in the missing leaf.

**(Total for Question 11 is 1 mark)**

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**12** A transport officer in Leeds recorded the number of minutes a bus was delayed each day for a week.

| Stem | Leaf |
|---|---|
| 0 | 2 2 5 8 |
| 1 | 1 4 |

Key: 1 | 4 means 14 minutes

Write down the mode of the delay times.

**(Total for Question 12 is 1 mark)**

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**13** A vet in Derby recorded the weight, in kg, of 6 dogs brought in for a check-up.

| Stem | Leaf |
|---|---|
| 1 | 2 8 |
| 2 | 0 4 4 9 |

Key: 2 | 4 means 24 kg

Write down the weight represented by the leaf 9 in the stem 2 row.

**(Total for Question 13 is 1 mark)**


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**14** The stem and leaf diagram shows the scores in a class test.

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

**(a)** Write down the median score. **(2)**

.....

**(b)** Write down the mode of the scores. **(1)**

.....

**(Total for Question 14 is 3 marks)**


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**15** A gardening club in Cardiff measured the height, in cm, of 6 seedlings. The stem and leaf diagram shows the heights.

| Stem | Leaf |
|---|---|
| 0 | 4 6 9 |
| 1 | 2 3 7 |

Key: 1 | 2 means 12 cm

Show that the median height is 10.5 cm.

**(Total for Question 15 is 2 marks)**

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**16** A sorting office in Sheffield recorded the weight, in kg, of parcels processed in one hour.

| Stem | Leaf |
|---|---|
| 1 | 2 8 |
| 2 | 0 3 6 |
| 3 | 1 |

Key: 2 | 3 means 2.3 kg

Work out the range of the parcel weights.

**(Total for Question 16 is 2 marks)**


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**17** Here are two stem and leaf diagrams showing the times (minutes) taken by two teams to complete a puzzle.

Team A

| Stem | Leaf |
|---|---|
| 1 | 2 5 8 |
| 2 | 0 3 |

Team B

| Stem | Leaf |
|---|---|
| 1 | 4 6 9 |
| 2 | 1 5 |

**(a)** Work out the median time for Team A. **(1)**

.....

**(b)** Work out the median time for Team B. **(1)**

.....

**(c)** State which team was generally faster, giving a reason. **(2)**

**(Total for Question 17 is 4 marks)**


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**18** A survey recorded the number of goals scored by junior teams in a season. The stem and leaf diagram is:

| Stem | Leaf |
|---|---|
| 0 | 2 2 5 |
| 1 | 0 3 4 4 |

**(a)** How many teams scored fewer than 10 goals? **(1)**

**(b)** Calculate the interquartile range (IQR). **(3)**

**(Total for Question 18 is 4 marks)**

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**19** The mean time that 7 students spent revising on Sunday was 24 minutes. The stem and leaf diagram shows the times for 6 of the students; the leaf for the 7th student, shown as n in stem 3, is unknown.

| Stem | Leaf |
|---|---|
| 0 | 8 |
| 1 | 5 9 |
| 2 | 2 8 |
| 3 | n |
| 4 | 1 |

Key: 2 | 2 means 22 minutes

Work out the value of n.

**(Total for Question 19 is 4 marks)**


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**20** Priya recorded the time, in minutes, that 7 pupils spent on their homework: 8, 15, 19, 21, 24, 32, 35. She then drew this stem and leaf diagram, but made one mistake when entering the data.

| Stem | Leaf |
|---|---|
| 0 | |
| 1 | 5 8 9 |
| 2 | 1 4 |
| 3 | 2 5 |

Key: 2 | 4 means 24 minutes

**(a)** One value has been written in the wrong row of Priya's diagram. State the value, as it appears in Priya's diagram, and the row (stem) it should have been placed in instead. **(2)**

**(b)** Write the corrected leaf row for stem 0. **(1)**

.....

**(Total for Question 20 is 3 marks)**


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# Mark scheme · 2.16 Stem and Leaf: Test Pack

## Question 1

sum of values divided by number of values **M1**

mean to 1 decimal place **A1**

**Answer: 48.9**

## Question 2

largest - smallest **M1**

range cao **A1**

**Answer: 36**

## Question 3

sum of values divided by number of values **M1**

mean to 1 decimal place **A1**

**Answer: 42.8**

## Question 4

4 cao **B1**

4/12 **M1**

1/3 cao **A1**

**Answer: 4 plants, 1/3**

## Question 5

largest - smallest **M1**

range cao **A1**

**Answer: 28**

## Question 6

sum of values divided by number of values **M1**

mean to 1 decimal place **A1**

**Answer: 25.4**

## Question 7

5 cao **B1**

5/12 cao **B1**

**Answer: 5 plants, 5/12**

## Question 8

7 cao **B1**

7/8 cao **B1**

**Answer: 7 plants, 7/8**

## Question 9

61 cao **B1**

**Answer: 61**

## Question 10

5 cao **B1**

**Answer: 5**

## Question 11

3 cao **B1**

**Answer: 3**

## Question 12

2 minutes cao **B1**

**Answer: 2 minutes**

## Question 13

29 kg cao **B1**

**Answer: 29 kg**

## Question 14

(a) order data and identify middle value for 7 values oe **M1**

(a) 60 cao **A1**

**(a) Answer: 60**

(b) no mode oe **B1**

**(b) Answer: No mode**

## Question 15

identify the two middle values, 9 and 12, from the ordered data oe **M1**

(9 + 12) / 2 = 10.5 cso **A1**

**Answer: 10.5 cm**

## Question 16

identify smallest and largest values, 1.2 kg and 3.1 kg oe **M1**

1.9 kg cao **A1**

**Answer: 1.9 kg**

## Question 17

(a) 18 minutes cao **B1**

**(a) Answer: 18 minutes**

(b) 19 minutes cao **B1**

**(b) Answer: 19 minutes**

(c) compare the two medians, 18 and 19 oe **M1**

(c) Team A, since 18 < 19 (lower median time) cao **A1**

**(c) Answer: Team A was generally faster, since their median time (18 minutes) is lower than Team B's (19 minutes).**

## Question 18

(a) 3 cao **B1**

**(a) Answer: 3**

(b) order data and find Q1 and Q3 with correct halves oe **M1**

(b) calculate Q3 - Q1 correctly oe **M1**

(b) 12 cao **A1**

**(b) Answer: 12**

## Question 19

total of all 7 values = 24 x 7 = 168 oe **M1**

sum of the 6 known values = 8 + 15 + 19 + 22 + 28 + 41 = 133 oe **M1**

missing value = 168 - 133 = 35 oe **M1**

n = 5 cao **A1**

**Answer: n = 5**


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## Question 20

(a) 18 identified as the incorrect leaf, currently shown in stem 1 oe **B1**

(a) stem 0 stated as the correct row (the value should be 8) cao **B1**

**(a) Answer: 18 in stem 1 is wrong; it should be 8 in stem 0.**

(b) 0 | 8 cao **B1**

**(b) Answer: 8**


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