2.16 Stem and Leaf: 30-minute Pack

EDEXCEL 1MA1 · Calculator allowed · about 30 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 The stem and leaf diagram shows the heights, in cm, of 10 plants.

1	**0 2 4 8**
2	1 5 8
3	3 4 6

Key: 2 | 3 means 23

How many plants are taller than 24 cm? What fraction of all the plants is this? Give the fraction in its simplest form.

(Total for Question 1 is 3 marks)

2 The stem and leaf diagram shows the heights, in cm, of 10 plants.

1	**0 1 1 2**
2	0 3 9
3	0 0 9

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 2 is 2 marks)

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

2	**6**
3	0 0 3 3 5 7
4	2 2 4 5
5	8 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 times, in seconds, taken by 15 runners.

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

Key: 2 | 3 means 23

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

(Total for Question 4 is 2 marks)

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

2	**7 9**
3	0 8
4	0 3 6 6

Key: 2 | 3 means 23

How many plants are taller than 34 cm? What fraction of all the plants is this? Give the fraction in its simplest form.

(Total for Question 5 is 2 marks)

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

2	**3 3 3**
3	1 1 8 9
4	4

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 6 is 2 marks)

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

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

Key: 2 | 3 means 23

Find the median.

(Total for Question 7 is 2 marks)

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8 Complete the stem and leaf diagram for the data: 33, 30, 37.

Stem	Leaf
3	____

Write the leaf values in order.

(Total for Question 8 is 1 mark)

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9 At a gym in Manchester, the number of push-ups completed by 8 members in one minute was recorded.

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

Key: 1 | 5 means 15 push-ups

(a) How many members completed fewer than 15 push-ups? **(1)**

(b) Calculate the interquartile range (IQR) of the number of push-ups completed. **(3)**

.....

(Total for Question 9 is 4 marks)

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10 A school in Bristol recorded, in a back-to-back stem and leaf diagram, the time (seconds) taken by 6 boys and 6 girls to complete a puzzle.

Boys (leaf)	Stem	Girls (leaf)
8 5 2	4	0 4 6 7
6 3 1	5	0 5

Key: for the boys, 4 | 2 means 42 seconds. For the girls, 4 | 0 means 40 seconds.

For the boys, the leaf closest to the stem is the smallest digit, so for stem 4 the boys' times are 42, 45 and 48 seconds.

(a) Work out the median completion time for the boys. **(1)**

.....

(b) Work out the median completion time for the girls. **(1)**

.....

(c) By comparing the medians and the ranges, state which group had the faster typical time and which group was more consistent. Give a reason for each answer. **(2)**

(Total for Question 10 is 4 marks)

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Mark scheme · 2.16 Stem and Leaf: 30-minute Pack

Question 1

5 cao	**B1**
5/10	**M1**
1/2 cao	**A1**

Answer: 5 plants, 1/2

Question 2

3 cao	**B1**
3/10 cao	**B1**

Answer: 3 plants, 3/10

Question 3

sum of values divided by number of values	**M1**
mean to 1 decimal place	**A1**

Answer: 39.5

Question 4

sum of values divided by number of values	**M1**
mean to 1 decimal place	**A1**

Answer: 27.5

Question 5

5 cao	**B1**
5/8 cao	**B1**

Answer: 5 plants, 5/8

Question 6

1 cao	**B1**
1/8 cao	**B1**

Answer: 1 plants, 1/8

Question 7

identifies the middle value	**M1**
median cao	**A1**

Answer: 39

Question 8

0 3 7 cao	**B1**

Answer: 0 3 7

Question 9

(a) 4 cao	**B1**

(a) Answer: 4

(b) order the 8 values and split into lower and upper halves oe	**M1**
(b) find Q1 = 10.5 and Q3 = 18.5 oe	**M1**
(b) 8 cao	**A1**

(b) Answer: 8

Question 10

(a) 49.5 seconds cao	**B1**

(a) Answer: 49.5 seconds

(b) 46.5 seconds cao	**B1**

(b) Answer: 46.5 seconds

(c) girls had the faster typical time, since their median (46.5 s) is lower than the boys' median (49.5 s) oe	**B1**
(c) boys were more consistent, since their range (14 s) is smaller than the girls' range (15 s) oe	**B1**

(c) Answer: Girls were faster on average (lower median); boys were more consistent (smaller range).

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