2.14 Stem and Leaf Diagrams: 1-hour Pack

EDEXCEL 1ST0 · Calculator allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Here is a stem and leaf diagram, written out in rows, showing the number of sweets in 19 packets.

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

Key: 3 | 4 means 34

(a) Find the median.

(b) Work out the interquartile range (use positions $(n + 1)/4$ and $3(n + 1)/4$).

(c) How many of the values are greater than 42?

(Total for Question 1 is 6 marks)

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2 The back-to-back stem and leaf diagram, written out in rows, shows the marks in a test out of 60 for Boys (left) and Girls (right).

Boys	stem	Girls
8	1	
6 4	2	4 4
5 3	3	3 4
4	4	2 3
0	5	9

Key: on the left, 4 in the leaf column beside stem 3 means 34 for Boys; on the right, 4 beside stem 3 means 34 for Girls

(a) Find the median for Boys and for Girls.
(b) Work out the range for each.
(c) Make one comparison, in context, using the medians.

(Total for Question 2 is 4 marks)

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3 Here is a stem and leaf diagram, written out in rows, showing the marks of 7 students in a test out of 100.

3	**1 5 6**
4	
5	
6	
7	3
8	
9	4 4 9

Key: 3 | 4 means 34

(a) Write down the mode.
(b) Find the median.
(c) Work out the range.

(Total for Question 3 is 5 marks)

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4 Here is a stem and leaf diagram, written out in rows, showing the lengths, in centimetres, of 7 fish caught in a competition.

2	**7 9**
3	2 7 7 9
4	7

Key: 3 | 4 means 34

(a) Find the median.
(b) Work out the interquartile range (use positions $(n + 1)/4$ and $3(n + 1)/4$).
(c) How many of the values are greater than 29?

(Total for Question 4 is 6 marks)

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5 Here is a stem and leaf diagram, written out in rows, showing the number of sweets in 19 packets.

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

Key: 3 | 4 means 34

(a) Find the median.
(b) Work out the range.
(c) How many of the values are greater than 30?

(Total for Question 5 is 6 marks)

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6 Here is a stem and leaf diagram, written out in rows, showing the heights, in centimetres, of 15 tomato plants.

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

Key: 3 | 4 means 34

(a) Find the median.

(b) Work out the range.

(c) How many of the values are greater than 54?

(Total for Question 6 is 6 marks)

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7 The back-to-back stem and leaf diagram, written out in rows, shows the marks in a test out of 60 for Morning (left) and Afternoon (right).

Morning	stem	Afternoon
7 7	1	
7 1	2	3 9
3 3	3	
9	4	6 7 9
	5	4 9

Key: on the left, 4 in the leaf column beside stem 3 means 34 for Morning; on the right, 4 beside stem 3 means 34 for Afternoon

(a) Find the median for Morning and for Afternoon.
(b) Work out the range for each.
(c) Make one comparison, in context, using the medians.

(Total for Question 7 is 4 marks)

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8 Here is a stem and leaf diagram, written out in rows, showing the lengths, in centimetres, of 15 fish caught in a competition.

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

Key: 3 | 4 means 34

(a) Find the median.

(b) Work out the range.

(c) How many of the values are greater than 18?

(Total for Question 8 is 6 marks)

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9 Here is a stem and leaf diagram, written out in rows, showing the journey times, in minutes, of 11 commuters.

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

Key: 3 | 4 means 34

(a) Find the median.
(b) Work out the range.
(c) How many of the values are greater than 37?

(Total for Question 9 is 6 marks)

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10 The back-to-back stem and leaf diagram, written out in rows, shows the numbers of points scored in a quiz for Class A (left) and Class B (right).

Class A	stem	Class B
6 1	1	8
9 4	2	7
	3	1
9	4	2 5
0 0	5	4 7

Key: on the left, 4 in the leaf column beside stem 3 means 34 for Class A; on the right, 4 beside stem 3 means 34 for Class B

(a) Find the median for Class A and for Class B.
(b) Work out the range for each.
(c) Make one comparison, in context, using the medians.

(Total for Question 10 is 4 marks)

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11 Here is a stem and leaf diagram, written out in rows, showing the ages, in years, of 11 people on a coach trip.

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

Key: 3 | 4 means 34

(a) Find the median.
(b) Work out the range.
(c) How many of the values are greater than 54?

(Total for Question 11 is 6 marks)

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Mark scheme · 2.14 Stem and Leaf Diagrams: 1-hour Pack

Question 1

identifies the middle position (10th value)	**M1**
37 cao	**A1**
quartiles found (20 and 54)	**M1**
34 cao	**A1**
counts leaves above 42	**M1**
5 cao	**A1**

Answer: (a) 37; (b) 34; (c) 5

Question 2

Boys median 33	**B1**
Girls median 34	**B1**
ranges 32 and 35	**B1**
comparison in context: Girls did better on average (higher median)	**B1**

Answer: (a) Boys 33, Girls 34; (b) Boys 32, Girls 35; (c) Girls has the higher median

Question 3

94 cao	**B1**
identifies the middle position (4th value)	**M1**
73 cao	**A1**
largest minus smallest	**M1**
68 cao	**A1**

Answer: (a) 94; (b) 73; (c) 68

Question 4

identifies the middle position (4th value)	**M1**
37 cao	**A1**
quartiles found (29 and 39)	**M1**
10 cao	**A1**
counts leaves above 29	**M1**
5 cao	**A1**

Answer: (a) 37; (b) 10; (c) 5

Question 5

identifies the middle position (10th value)	**M1**
44 cao	**A1**
largest minus smallest	**M1**
46 cao	**A1**
counts leaves above 30	**M1**
12 cao	**A1**

Answer: (a) 44; (b) 46; (c) 12

Question 6

identifies the middle position (8th value)	**M1**
70 cao	**A1**
largest minus smallest	**M1**
51 cao	**A1**
counts leaves above 54	**M1**
11 cao	**A1**

Answer: (a) 70; (b) 51; (c) 11

Question 7

Morning median 27	**B1**
Afternoon median 47	**B1**
ranges 32 and 36	**B1**
comparison in context: Afternoon did better on average (higher median)	**B1**

Answer: (a) Morning 27, Afternoon 47; (b) Morning 32, Afternoon 36; (c) Afternoon has the higher median

Question 8

identifies the middle position (8th value)	**M1**
29 cao	**A1**
largest minus smallest	**M1**
36 cao	**A1**
counts leaves above 18	**M1**
10 cao	**A1**

Answer: (a) 29; (b) 36; (c) 10

Question 9

identifies the middle position (6th value)	**M1**
37 cao	**A1**
largest minus smallest	**M1**
33 cao	**A1**
counts leaves above 37	**M1**
4 cao	**A1**

Answer: (a) 37; (b) 33; (c) 4

Question 10

Class A median 29	**B1**
Class B median 42	**B1**
ranges 39 and 39	**B1**
comparison in context: Class B did better on average (higher median)	**B1**

Answer: (a) Class A 29, Class B 42; (b) Class A 39, Class B 39; (c) Class B has the higher median

Question 11

identifies the middle position (6th value)	**M1**
54 cao	**A1**
largest minus smallest	**M1**
52 cao	**A1**
counts leaves above 54	**M1**
5 cao	**A1**

Answer: (a) 54; (b) 52; (c) 5

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