3.10 Averages from a Frequency Table: 1-hour Pack

EDEXCEL 1ST0 · Calculator allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 The table shows the number of rooms in a house for some houses on a street. One frequency is missing and is shown as x.

Rooms	Frequency
0	10
1	8
2	10
3	x

The mean is 1.25. Work out the value of x.

(Total for Question 1 is 4 marks)

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2 The table shows information about the number of books read in a month for 48 students.

Books read	Frequency
0	12
1	5
2	6
3	2
4	10
5	11
6	2

(a) Work out the sum of the frequencies, and so confirm the number of items.

(b) Work out the median.

(c) Work out the mean. Give your answer to 2 decimal places if necessary.

(Total for Question 2 is 6 marks)

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3 The table shows the number of text messages received in an hour for some phones tested. One frequency is missing and is shown as x.

Messages	Frequency
0	x
1	9
2	10
3	2

The mean is 1.4. Work out the value of x.

(Total for Question 3 is 4 marks)

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4 The table shows the number of pets owned for some families surveyed. One frequency is missing and is shown as x.

Number of pets	Frequency
1	2
2	10
3	12
4	x

The mean is 3. Work out the value of x.

(Total for Question 4 is 4 marks)

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5 The table shows information about the number of cars owned by a household for 40 households.

Number of cars	Frequency
0	11
1	3
2	6
3	12
4	4
5	4

(a) Write down the mode.
(b) Work out the median.
(c) Work out the mean. Give your answer to 2 decimal places if necessary.

(Total for Question 5 is 6 marks)

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6 The table shows the number of goals scored in a match for some matches. One frequency is missing and is shown as x.

Goals	Frequency
0	5
1	4
2	x
3	7
4	4

The mean is 2.04. Work out the value of x.

(Total for Question 6 is 4 marks)

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7 The table shows information about the number of cars owned by a household for 31 households.

Number of cars	Frequency
0	1
1	9
2	8
3	12
4	1

(a) Write down the mode.

(b) Work out the median.

(c) Work out the mean. Give your answer to 2 decimal places if necessary.

(Total for Question 7 is 6 marks)

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8 The table shows the number of text messages received in an hour for some phones tested. One frequency is missing and is shown as x.

Messages	Frequency
1	11
2	x
3	2
4	8

The mean is 2.2. Work out the value of x.

(Total for Question 8 is 4 marks)

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9 The table shows information about the number of cars owned by a household for 34 households.

Number of cars	Frequency
0	6
1	9
2	2
3	12
4	5

(a) Work out the sum of the frequencies, and so confirm the number of items.
(b) Write down the mode.
(c) Work out the mean. Give your answer to 2 decimal places if necessary.

(Total for Question 9 is 5 marks)

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10 The table shows the number of goals scored in a match for some matches. One frequency is missing and is shown as x.

Goals	Frequency
1	9
2	4
3	x
4	4

The mean is 2.4. Work out the value of x.

(Total for Question 10 is 4 marks)

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11 The table shows the number of rooms in a house for some houses on a street. One frequency is missing and is shown as x.

Rooms	Frequency
1	4
2	2
3	12
4	x
5	7

The mean is 3.4. Work out the value of x.

(Total for Question 11 is 4 marks)

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12 The table shows information about the number of goals scored in a match for 47 matches.

Goals	Frequency
0	7
1	11
2	2
3	8
4	3
5	4
6	12

(a) Work out the median.
(b) Work out the mean. Give your answer to 2 decimal places if necessary.
(c) Work out the range.

(Total for Question 12 is 6 marks)

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13 A charity shop records the number of items bought by 20 customers in one morning.

Items bought	1	2	3	4	5
Frequency	2	5	7	4	2

Calculate the mean number of items bought per customer. The shop claims that, on average, customers buy at least 3 items. Does the mean support this claim? Give a reason.

(Total for Question 13 is 3 marks)

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Mark scheme · 3.10 Averages from a Frequency Table: 1-hour Pack

Question 1

sum of (value x frequency) written including x	**M1**
equation: sum of products = 1.25 x (total frequency including x)	**M1**
collects terms in x and solves	**M1**
4 cao	**A1**

Answer: 4

Question 2

48 cao	**B1**
identifies the position of the median (48 items, cumulative frequencies used)	**M1**
3 cao	**A1**
products of value and frequency formed (at least 3 correct)	**M1**
sum of products (130) divided by 48	**M1**
2.71 cao	**A1**

Answer: (a) 48; (b) 3; (c) 2.71

Question 3

sum of (value x frequency) written including x	**M1**
equation: sum of products = 1.4 x (total frequency including x)	**M1**
collects terms in x and solves	**M1**
4 cao	**A1**

Answer: 4

Question 4

sum of (value x frequency) written including x	**M1**
equation: sum of products = 3 x (total frequency including x)	**M1**
collects terms in x and solves	**M1**
14 cao	**A1**

Answer: 14

Question 5

3 cao	**B1**
identifies the position of the median (40 items, cumulative frequencies used)	**M1**
2.5 cao	**A1**
products of value and frequency formed (at least 3 correct)	**M1**
sum of products (87) divided by 40	**M1**
2.18 cao	**A1**

Answer: (a) 3; (b) 2.5; (c) 2.18

Question 6

sum of (value x frequency) written including x	**M1**
equation: sum of products = 2.04 x (total frequency including x)	**M1**
collects terms in x and solves	**M1**
5 cao	**A1**

Answer: 5

Question 7

3 cao	**B1**
identifies the position of the median (31 items, cumulative frequencies used)	**M1**
2 cao	**A1**
products of value and frequency formed (at least 3 correct)	**M1**
sum of products (65) divided by 31	**M1**
2.10 cao	**A1**

Answer: (a) 3; (b) 2; (c) 2.10

Question 8

sum of (value x frequency) written including x	**M1**
equation: sum of products = 2.2 x (total frequency including x)	**M1**
collects terms in x and solves	**M1**
14 cao	**A1**

Answer: 14

Question 9

34 cao	**B1**
3 cao	**B1**
products of value and frequency formed (at least 3 correct)	**M1**
sum of products (69) divided by 34	**M1**
2.03 cao	**A1**

Answer: (a) 34; (b) 3; (c) 2.03

Question 10

sum of (value x frequency) written including x	**M1**
equation: sum of products = 2.4 x (total frequency including x)	**M1**
collects terms in x and solves	**M1**
13 cao	**A1**

Answer: 13

Question 11

sum of (value x frequency) written including x	**M1**
equation: sum of products = 3.4 x (total frequency including x)	**M1**
collects terms in x and solves	**M1**
10 cao	**A1**

Answer: 10

Question 12

identifies the position of the median (47 items, cumulative frequencies used)	**M1**
3 cao	**A1**
products of value and frequency formed (at least 3 correct)	**M1**
sum of products (143) divided by 47	**M1**
3.04 cao	**A1**
6 cao	**B1**

Answer: (a) 3; (b) 3.04; (c) 6

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Question 13

1x2+2x5+3x7+4x4+5x2 (=59), oe	**M1**
2.95 cao	**A1**
No, because 2.95 is less than 3, oe	**B1**

Answer: Mean = 2.95. No, the claim is not supported, since 2.95 is less than the claimed 3 items.

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