6.5 Averages from Frequency Tables: 30-minute Pack

Calculators not allowed · about 30 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A school orders 60 identical exercise books. A survey of 30 pupils gave a frequency table for pages used last term: pages used 10, 20, 30, 40 with frequencies 6, 12, 9, 3. Using this table, estimate how many pages a randomly chosen pupil from the 60-pupil year might use on average.

(3)

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2 A teacher records the number of books read by four pupils: Alice 3, Ben 5, Priya 2, Kwame 4. Calculate the mean number of books read.

(2)

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3 The table shows the number of pets for a group of people.
number of pets = 2: frequency 2; number of pets = 3: frequency 8; number of pets = 4: frequency 3; number of pets = 5: frequency 1.
Work out the total frequency and the mode.

(2)

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4 The table shows the number of pets for a group of people.
number of pets = 2: frequency 12; number of pets = 3: frequency 2; number of pets = 4: frequency 1; number of pets = 5: frequency 10.
Work out the number of people with a value greater than the mean.

(4)

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5 The table shows the number of pets for a group of people.
number of pets = 2: frequency 1; number of pets = 3: frequency 6; number of pets = 4: frequency 5; number of pets = 5: frequency 4; number of pets = 6: frequency 5; number of pets = 7: frequency 3.
Work out the median.

(3)

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6 Use the frequency table to write down the mode, then find the median.
Value: 10, 11, 12, 13
Frequency: 2, 3, 1, 4

(a) Write down the mode. **(1)**

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(b) Find the median value. **(2)**

.....

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7 The numbers of pets owned by 22 pupils are: 2, 5, 6, 6, 5, 6, 5, 3, 2, 4, 6, 3, 2, 5, 4, 4, 2, 4, 4, 5, 5, 2.
What fraction of the pupils own exactly 5 pets? Give your answer in its simplest form.

(3)

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8 Write down the modal class from this grouped frequency table.
Class intervals: 0-9, 10-19, 20-29
Frequency: 3, 7, 4

(1)

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9 Find the mean of 5, 7 and 9.

(1)

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10 A frequency table shows:
Value: 2, 3, 4
Frequency: 5, 3, 2
Calculate the mean.

(2)

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Mark scheme · 6.5 Averages from Frequency Tables: 30-minute Pack

Question 1

compute mean from sample: sum = 10*6 + 20*12 + 30*9 + 40*3 = 60 + 240 + 270 + 120 = 690	M1
divide by sample size 30 to get mean = 690/30 = 23	M1
estimate for 60 pupils = 23 pages on average per pupil cao	A1

Answer: **23**

Question 2

sum of values 3 + 5 + 2 + 4 = 14 or method to divide by 4 shown	M1
mean = 3.5 cao	A1

Answer: **3.5**

Question 3

total 14	B1
mode 3	B1

Answer: **total 14, mode 3**

Question 4

fx column	M1
mean = 84 ÷ 25	M1
identifies the values above the mean	M1
11 cao	A1

Answer: **11**

Question 5

24 values in total, median at position 12.5	M1
cumulative frequency used	M1
4.5 cao	A1

Answer: **4.5**

Question 6

(a) mode = 13 cao	B1

(a) Answer: **13**

(b) correct cumulative frequencies and locating middle position (total frequency 10 so median is 5th and 6th values)	M1
(b) median = 11.5 cao	A1

(b) Answer: **11.5**

Question 7

frequency 6 found	M1
6/22	M1
3/11 cao	A1

Answer: **3/11**

Question 8

modal class 10-19 cao	B1

Answer: **10-19**

Question 9

mean = 7 cao	B1

Answer: **7**

Question 10

sum of value x frequency = 27 or equivalent method shown	M1
mean = 2.7 cao	A1

Answer: **2.7**

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