6.5 Averages from Frequency Tables: 10-minute Pack

Calculators not allowed · about 10 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Using the grouped frequency table with classes 0-9, 10-19, 20-29 and frequencies 2, 5, 3, find the modal class and explain why we cannot give an exact mode.

(2)

2 Two classes sat the same test. Class A median = 14, mean = 13.5. Class B median = 12, mean = 13. Decide which class is more likely to have a skewed distribution and explain your reasoning briefly.

(3)

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3 A cumulative frequency table of test times (minutes) shows:

Time ≤ 10: 2

Time ≤ 20: 6

Time ≤ 30: 11

Time ≤ 40: 15

Find the class interval that contains the lower quartile (25th percentile) time.

(2)

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4 The numbers of pets owned by 15 pupils are: 3, 7, 7, 4, 7, 7, 7, 6, 5, 7, 6, 7, 5, 3, 4.

What fraction of the pupils own exactly 3 pets? Give your answer in its simplest form.

(2)

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Mark scheme · 6.5 Averages from Frequency Tables: 10-minute Pack

Question 1

modal class 10-19 cao	**B1**
reason: data are grouped so individual values inside 10-19 unknown so exact mode not known	**B1**

Answer: **modal class 10-19; exact mode unknown because grouped data hide individual values**

Question 2

state which class likely skewed (Class B because mean > median or vice versa) or show relationship	**M1**
explain idea: mean is affected by extreme values so differs from median when skewed	**M1**
conclude Class B is likely positively skewed because mean (13) is greater than median (12) or Class A near symmetric since mean 13.5 close to median 14	**A1**

Answer: **Class B more likely skewed; mean > median suggests positive skew**

Question 3

identify total frequency 15 and 25% position = 0.25*15 = 3.75 so look for 4th value in cumulative table	**M1**
the lower quartile lies in the 10 < time ≤ 20 class (the 20-minute row) cao	**A1**

Answer: **10 < time ≤ 20 (the 20-minute row)**

Question 4

frequency 2 found	**M1**
2/15 cao	**A1**

Answer: **2/15**

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