10.5 Numerical Skills: Percentages, Averages and Measures of Spread: 10-minute Pack

AQA 8035 · Calculators not allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 State what is meant by the term 'median' when describing a numerical data set in geography.

(Total for Question 1 is 1 mark)

2 State the mode for the following sample of household waste weights (kg) collected in a street: 3, 4, 2, 3, 5, 3, 4.

(Total for Question 2 is 1 mark)

3 A field survey records tree counts on a hill: 2, 2, 3, 4, 2, 5, 3. State the median tree count and show how you found it.

(Total for Question 3 is 2 marks)

4 A conservation survey records bird counts on six transects: 4, 6, 5, 7, 6, 5. Calculate the mode and state whether the data are symmetric by comparing mean and median briefly.

(Total for Question 4 is 2 marks)

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5 Using the quartile values Q1 = 12, median = 18 and Q3 = 26 for annual rainfall (mm) at a weather station, calculate the interquartile range and state what it shows about the rainfall distribution.

(Total for Question 5 is 2 marks)

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6 A sample of household incomes in a small town in pounds per week is: 120, 130, 150, 140, 110, 125. Calculate the median income and the mean income, then state which average is higher.

(Total for Question 6 is 2 marks)

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Mark scheme · 10.5 Numerical Skills: Percentages, Averages and Measures of Spread: 10-minute Pack

Question 1

the middle value when the data are arranged in order, oe **B1**

Answer: The middle value when the data are arranged in order.

Question 2

mode = 3, oe **B1**

Answer: Mode = 3 kg.

Question 3

data ordered and middle position identified, e.g. ordered 2,2,2,3,3,4,5 and middle is 3rd or 4th, oe **M1**

median = 3 cao **A1**

Answer: Median = 3 (ordered data 2,2,2,3,3,4,5, middle value is 3).

Question 4

mode identified, 5 or 6 both appear twice so state both or state bimodal, oe **M1**

mean = (4+6+5+7+6+5)/6 = 33/6 = 5.5, median = (5+6)/2 = 5.5 so mean = median so distribution roughly symmetric, oe **A1**

Answer: Mode = 5 and 6 (bimodal). Mean = 33/6 = 5.5; median = (5 + 6)/2 = 5.5, so mean equals median and the distribution is roughly symmetric.

Question 5

method: Q3 - Q1 seen, e.g. 26 - 12, oe **M1**

IQR = 14 mm and statement that central 50% of values lie within 14 mm implying moderate spread, oe **A1**

Answer: IQR = 14 mm. This shows the middle 50% of annual rainfall measurements fall within a 14 mm range, indicating a moderate spread around the median.

Question 6

median method: order data and find middle two: ordered 110,120,125,130,140,150 so median = (125+130)/2 seen, oe **M1**

median = £127.5 and mean = £129.17 (775/6 = 129.166...), accept mean £129 if shown correctly, and state mean higher, oe **A1**

Answer: Median = (125 + 130)/2 = £127.5. Mean = (110+120+125+130+140+150)/6 = 775/6 = 129.166... pounds, rounded 129.17. Mean is higher than median.

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