7.14 Data Handling: Descriptive Statistics, Graphs and Levels of Measurement: Test Pack

AQA 7182 · about 15 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions.

1 Define the three levels of measurement used in psychological data: nominal, ordinal and interval. Give a single-sentence example for each level that is relevant to psychology research.

(Total for Question 1 is 3 marks)

2 A psychology class records the number of errors made on a memory test by six students: 0, 1, 0, 2, 7, 0. Calculate the mean and median, and explain briefly how an outlier affects the mean more than the median using these data.

(Total for Question 2 is 6 marks)

3 Sketch a labelled scattergram suitable for showing the relationship between hours of revision (x) and exam score out of 100 (y) for a correlational study of 20 students. In the sketch indicate where you would place axis labels, a title and an appropriate line-of-best-fit.

(Total for Question 3 is 4 marks)

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Mark scheme · 7.14 Data Handling: Descriptive Statistics, Graphs and Levels of Measurement: Test Pack

Question 1

nominal: a level of measurement using categories with no order, e.g. participant gender categories or favourite therapy type oe	**B1**
ordinal: ordered categories where the rank matters but intervals are not equal, e.g. Likert scale responses from 1 = strongly disagree to 5 = strongly agree oe	**B1**
interval: numerical scale with equal intervals and no true zero, e.g. temperature in °C used in a lab task, or IQ scores treated as interval oe	**B1**

Answer: Nominal: categories with no order, e.g. diagnosis type. Ordinal: ordered categories without equal intervals, e.g. 1 to 5 Likert anxiety rating. Interval: equal-interval numeric scale with no true zero, e.g. temperature in °C or IQ score.

Question 2

calculates mean: sum = 0+1+0+2+7+0 = 10; mean = 10 / 6 = 1.666666... oe	**M1**
mean = 1.67 (2 dp) cao	**A1**
orders data for median: 0,0,0,1,2,7; median is average of 3rd and 4th values = (0 + 1) / 2 oe	**M1**
median = 0.5 cao	**A1**
identifies outlier: 7 is much larger than other scores oe	**M1**
explains effect: the outlier raises the mean from a typical value near 0 to 1.67, while the median remains low at 0.5, showing the mean is more influenced by extreme values oe	**A1**

Answer: Mean = 10/6 = 1.67 (2 dp). Median = 0.5. The value 7 is an outlier that increases the mean substantially while the median, based on the middle ranks, is much less affected, so the mean is more sensitive to extremes.

Question 3

sketch shows scatter of points with horizontal x-axis and vertical y-axis oe	**M1**
x-axis labelled 'Hours revision' and y-axis labelled 'Exam score (out of 100)' oe	**B1**
title present, e.g. 'Revision time and exam score' oe	**B1**
line-of-best-fit drawn approximately through the cloud of points, not necessarily connecting extremes, indicating the overall trend oe	**B1**

Answer: Sketch shows a scatter of points, x-axis labelled 'Hours revision', y-axis labelled 'Exam score (out of 100)', title 'Revision time and exam score', and an approximate line-of-best-fit drawn through the points to indicate the trend.

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