6.9 Comparing Distributions: 10-minute Pack

Calculators not allowed · about 10 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A boxplot shows the five-number summary: min = 12, Q1 = 15, median = 18, Q3 = 22, max = 30.
State the interquartile range and give one sentence about how spread and skew are shown by this boxplot.

(3)

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2 Grouped data: class widths 0-9, 10-19, 20-29 with frequencies 2, 5, 3. Use the midpoints to estimate the mean and then state which class (this or a class with mean 14 and same total frequency) has the higher average.

(4)

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3 Here are summary statistics for minutes.
Ali: mean 13, range 19.
Bea: mean 11, range 6.
Compare the two sets of data.

(2)

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Mark scheme · 6.9 Comparing Distributions: 10-minute Pack

Question 1

correct IQR calculation Q3 - Q1 shown (22 - 15)	**M1**
IQR = 7 stated	**M1**
one-sentence comment linking box length and whisker lengths to spread or noting slight positive skew because upper whisker longer than lower oe	**A1**

Answer: **IQR = 7; the upper whisker is longer than the lower so the data show a slight positive skew and more spread above the median.**

Question 2

use midpoints correctly (4.5, 14.5, 24.5) and multiply by frequencies or equivalent	**M1**
correct total frequency = 10 stated	**M1**
correct estimated mean computed: (4.5*2 + 14.5*5 + 24.5*3)/10 = (9 + 72.5 + 73.5)/10 = 155/10	**M1**
estimated mean = 15.5 and conclusion that this class (15.5) has higher average than class with mean 14 cao	**A1**

Answer: **Estimated mean = 15.5; this class has the higher average than the class with mean 14**

Question 3

comparison of the averages: Ali has the higher mean	**B1**
comparison of the spread: Bea is more consistent (smaller range)	**B1**

Answer: **Ali has the higher mean; Bea is more consistent as it has the smaller range**

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