6.9 Comparing Distributions: 1-hour Pack

Calculators not allowed · about 60 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Here are summary statistics for goals.
Team A: mean 13, range 20.
Team B: mean 30, range 7.
Compare the two sets of data.

(2)

2 Here are the times, in seconds, of two runners over several races.
Runner A: 40, 16, 13, 13, 38
Runner B: 17, 25, 15, 16, 28
Compare the two runners using the median and the range.

(4)

3 Here are summary statistics for marks.
Class 8X: mean 25, range 15.
Class 8Y: mean 23, range 11.
Compare the two sets of data.

(2)

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4 Here are the times, in seconds, of two runners over several races.
Runner A: 11, 22, 30, 26, 8, 16, 5
Runner B: 34, 25, 39, 21, 25, 19, 27
Compare the two runners using the median and the range.

(4)

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5 Here are summary statistics for goals.
Team A: mean 20, range 6.
Team B: mean 24, range 20.
Compare the two sets of data.

(2)

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6 Here are summary statistics for goals.
Team A: mean 12, range 5.
Team B: mean 23, range 16.
Compare the two sets of data.

(2)

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7 Here are the times, in seconds, of two runners over several races.
Runner A: 13, 11, 19, 8, 40, 10, 30
Runner B: 19, 20, 31, 33, 17
Compare the two runners using the median and the range.

(4)

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8 Here are 6 numbers: 3, 6, 11, 19, 22, 11.
Work out the mean, the median and the range.

(3)

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9 Here are the times, in seconds, of two runners over several races.
Runner A: 27, 23, 10, 17, 13
Runner B: 14, 34, 11, 23, 34, 24, 30
Compare the two runners using the median and the range.

(4)

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10 Here are summary statistics for minutes.
Ali: mean 15, range 19.
Bea: mean 12, range 8.
Compare the two sets of data.

(2)

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11 Here are summary statistics for minutes.
Ali: mean 11, range 15.
Bea: mean 19, range 17.
Compare the two sets of data.

(2)

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12 Here are the times, in seconds, of two runners over several races.
Runner A: 12, 17, 13, 39, 32
Runner B: 6, 15, 20, 20, 24
Compare the two runners using the median and the range.

(4)

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13 Here are summary statistics for marks.
Class 8X: mean 25, range 20.
Class 8Y: mean 27, range 10.
Compare the two sets of data.

(2)

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14 Here are the times, in seconds, of two runners over several races.
Runner A: 22, 40, 28, 9, 15
Runner B: 20, 16, 7, 29, 8, 34, 15
Compare the two runners using the median and the range.

(4)

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15 Here are 10 numbers: 11, 16, 15, 5, 20, 30, 30, 15, 12, 30.
Work out the mean, the median and the range.

(3)

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16 The times in minutes that 6 people spent in a queue are: 17, 19, 22, 25, 29, 137.
Work out the mean and the median. Which average is a better summary of a typical wait? Give a reason.

(4)

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Mark scheme · 6.9 Comparing Distributions: 1-hour Pack

Question 1

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

Answer: **Team B has the higher mean; Team B is more consistent as it has the smaller range**

Question 2

medians 16 and 17	**B1**
ranges 27 and 13	**B1**
comparison of medians: Runner B has the higher median	**B1**
comparison of ranges: Runner B is more consistent	**B1**

Answer: **Runner B has the higher median (16 and 17); Runner B is more consistent (ranges 27 and 13)**

Question 3

comparison of the averages: Class 8X has the higher mean	**B1**
comparison of the spread: Class 8Y is more consistent (smaller range)	**B1**

Answer: **Class 8X has the higher mean; Class 8Y is more consistent as it has the smaller range**

Question 4

medians 16 and 25	**B1**
ranges 25 and 20	**B1**
comparison of medians: Runner B has the higher median	**B1**
comparison of ranges: Runner B is more consistent	**B1**

Answer: **Runner B has the higher median (16 and 25); Runner B is more consistent (ranges 25 and 20)**

Question 5

comparison of the averages: Team B has the higher mean	**B1**
comparison of the spread: Team A is more consistent (smaller range)	**B1**

Answer: **Team B has the higher mean; Team A is more consistent as it has the smaller range**

Question 6

comparison of the averages: Team B has the higher mean	**B1**
comparison of the spread: Team A is more consistent (smaller range)	**B1**

Answer: **Team B has the higher mean; Team A is more consistent as it has the smaller range**

Question 7

medians 13 and 20	**B1**
ranges 32 and 16	**B1**
comparison of medians: Runner B has the higher median	**B1**
comparison of ranges: Runner B is more consistent	**B1**

Answer: **Runner B has the higher median (13 and 20); Runner B is more consistent (ranges 32 and 16)**

Question 8

mean 12	**B1**
median 11	**B1**
range 19	**B1**

Answer: **mean 12, median 11, range 19**

Question 9

medians 17 and 24	**B1**
ranges 17 and 23	**B1**
comparison of medians: Runner B has the higher median	**B1**
comparison of ranges: Runner A is more consistent	**B1**

Answer: **Runner B has the higher median (17 and 24); Runner A is more consistent (ranges 17 and 23)**

Question 10

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**

Question 11

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

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

Question 12

medians 17 and 20	**B1**
ranges 27 and 18	**B1**
comparison of medians: Runner B has the higher median	**B1**
comparison of ranges: Runner B is more consistent	**B1**

Answer: **Runner B has the higher median (17 and 20); Runner B is more consistent (ranges 27 and 18)**

Question 13

comparison of the averages: Class 8Y has the higher mean	**B1**
comparison of the spread: Class 8Y is more consistent (smaller range)	**B1**

Answer: **Class 8Y has the higher mean; Class 8Y is more consistent as it has the smaller range**

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Question 14

medians 22 and 16	**B1**
ranges 31 and 27	**B1**
comparison of medians: Runner A has the higher median	**B1**
comparison of ranges: Runner B is more consistent	**B1**

Answer: **Runner A has the higher median (22 and 16); Runner B is more consistent (ranges 31 and 27)**

Question 15

mean 18.4	**B1**
median 15.5	**B1**
range 25	**B1**

Answer: **mean 18.4, median 15.5, range 25**

Question 16

mean 41.5	**B1**
median 23.5	**B1**
median chosen	**B1**
reason: 137 is an extreme value which pulls the mean up	**B1**

Answer: **mean 41.5, median 23.5; the median is better because 137 is an extreme value**

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