

Comparing Distributions

GCSE Maths · Written to the shared content for AQA, Edexcel and OCR

Name _____ Class _____ Date _____

1. Worked example

Find the mean, median, mode and range of 4, 7, 7, 9, 13.

Step 1 · Mean

$$40 \div 5 = 8$$

Step 2 · Median (already in order)

the 3rd value = 7

Step 3 · Mode and range

$$7; 13 - 4 = 9$$

Answer: Mean 8, median 7, mode 7, range 9

Check: There are 5 values, so the median is the $(5 + 1)/2 = 3$ rd ✓

2. Now try one with the steps

Estimate the mean journey time: 0–10 min (4 people), 10–20 (9), 20–30 (5), 30–40 (2).

Step 1 · Midpoints

Step 2 · $f \times \text{midpoint}$

Step 3 · Divide by the total frequency, 20

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. Find the mean of 3, 8, 10 and 11. [1]

2. Find the median of 5, 9, 2, 7, 4. [1]

3. Find the range of 12, 7, 19, 4, 15. [1]

4. Find the mode of 3, 3, 4, 5, 5, 5, 6. [1]
-
-
5. The mean of four numbers is 9. Three of them are 6, 8 and 10. Find the fourth. [2]
-
-
6. Scores: 1 (frequency 3), 2 (frequency 5), 3 (frequency 8), 4 (frequency 4). Find the mean score. [3]
-
-
-
7. For the table in question 6, find the median score. [2]
-
-
8. Heights: 150–160 cm (6 people), 160–170 cm (10), 170–180 cm (4). Estimate the mean height in cm. [3]
-
-
-
9. For the table in question 8, write down the modal class. [1]
-
-
10. For the table in question 8, which class contains the median? [1]
-
-
11. Why is a mean worked out from grouped data only an estimate? [1]
-
-
12. At shop A the mean wait is 4.2 minutes with a range of 6 minutes. At shop B the mean is 3.8 minutes with a range of 12 minutes. Make two comparisons. [2]
-
-
13. Which average best represents 2, 3, 3, 4, 50? Explain. [2]
-
-

14. Group X has median 31 and IQR 8. Group Y has median 27 and IQR 15. Compare the groups. [2]

15. The mean of 10 values is 6. The value 15 is removed. Find the mean of the remaining 9 values. [2]

4. Before you hand it in

'Team B's median is 28 and Team A's is 24'

Say what it means: 'Team B scored more on average because its median is higher.'

Median of 5, 9, 2, 7, 4 = 2

Order first: 2, 4, 5, 7, 9. The median is 5.

Grouped mean using the class widths (10 × each frequency)

Multiply each frequency by the MIDPOINT of its class, then divide by the total frequency.

Using the range to compare when one data set has an outlier

With an outlier, the IQR (Higher) or a comment about the outlier gives a fairer comparison of spread.