GRADE 7 MATHS

Mean, Median, Mode & Range

Complete Printable Worksheet Pack

6 Worksheets • Practice • Reasoning • Real-Life Data • Answer Keys

Name: _____

Class: _____ **Date:** _____

Worksheet 1: Mean — Finding and Using Averages

Name: _____ Date: _____

1. Find the mean of: 18, 24, 31, 27, 20.

2. Find the mean of: 7, 12, 15, 19, 22, 25.

3. A student scores 14, 18, 16, 21 and 11 on five quizzes. Find the mean score.

4. The mean of 6 numbers is 18. What is their total?

5. The mean of 8 numbers is 24. Seven of the numbers have a total of 151. Find the eighth number.

6. The mean of 5 numbers is 32. If 40 is added as a sixth number, what is the new mean?

7. A café records 42, 38, 51, 46 and 53 customers over five days. Find the mean number of customers.

8. The mean of four numbers is 17. Three numbers are 12, 19 and 15. Find the fourth number.

9. A player scores 18, 24, 16 and 22 in four games. What score is needed in the fifth game to have a mean of 21?

10. Explain why adding a value much larger than all the other values usually increases the mean.

Answer Key — Worksheet 1: Mean — Finding and Using Averages

1. 24

2. 16.67 (50/3)

3. 16

4. 108

5. 41

6. 33.33 (200/6 = 100/3)

7. 46

8. 22

9. 25

10. A very large value increases the total substantially, so dividing the larger total by the same number of values raises the mean.

Worksheet 2: Median — Ordered Data and Missing Values

Name: _____ Date: _____

1. Find the median: 12, 7, 19, 15, 10.

2. Find the median: 8, 14, 3, 21, 17, 11.

3. Find the median: 4, 9, 12, 15, 18, 21, 24.

4. The data are 6, 11, 14, x, 20, 23, 27. If the median is 14, give one possible whole-number value of x.

5. The median of 7 ordered values is 18. The fourth value is 18. What can you say about the other values?

6. Find the median of: 3.5, 7.2, 4.8, 9.1, 6.0, 2.4.

7. The ages are 12, 15, 13, 16, 12, 14, 17, 13. Find the median age.

8. A data set has five values with median 20. Four values are 12, 18, 25 and 31. Give a value that makes the median 20.

9. Can a data set with an even number of values have a median that is not one of the original values? Explain.

10. Which is less affected by one extremely large value: mean or median? Explain.

Answer Key — Worksheet 2: Median — Ordered Data and Missing Values

1. 12

2. 12.5

3. 15

4. Any whole-number x from 14 through 20 keeps 14 as the middle value; for example, x = 17.

5. The fourth value is 18; at least three values are at or below 18 and at least three values are at or above 18.

6. 5.4

7. 13.5

8. 20

9. Yes. With an even number of values, the median is the mean of the two middle values; for example, 2, 6, 10, 14 has median 8.

10. Median, because it depends on the middle position rather than the total of all values.

Worksheet 3: Mode, Frequency and Frequency Tables

Name: _____ Date: _____

Number of books	Students
0	2
1	5
2	8
3	6
4	4
5	3

1. Find the mode: 4, 7, 5, 4, 9, 4, 7, 6.

2. Find the mode(s): 3, 8, 5, 3, 8, 6, 5, 9.

3. The table shows the number of books read by students. Use it to answer Questions 4 and 5.

4. How many students read at least 4 books?

5. Using the table above, find the mode.

6. A survey gives: red 12, blue 18, green 7, yellow 9. Which colour is the mode?

7. A data set has modes 6 and 9. What does that tell you about their frequencies?

8. A teacher records: 2 occurs 3 times, 3 occurs 5 times, 4 occurs 7 times, 5 occurs 5 times. Find the mode and total number of observations.

9. Can a data set have no mode? Give an example.

10. Can a data set have more than one mode? Explain.

Answer Key — Worksheet 3: Mode, Frequency and Frequency Tables

Table used in Questions 3–5:

Number of books	Students
0	2
1	5
2	8
3	6
4	4
5	3

1. 4

2. 3, 5 and 8 (all occur twice)

3. Total number of students = 28 (2 + 5 + 8 + 6 + 4 + 3).

4. 7 students

5. 2 books

6. Blue

7. 6 and 9 occur the same greatest number of times.

8. Mode = 4; total observations = 20.

9. Yes. Example: 2, 4, 6, 8 — every value occurs once.

10. Yes. If two or more values tie for the greatest frequency, the data set is multimodal.

Worksheet 4: Range and Spread

Name: _____ Date: _____

1. Find the range: 14, 22, 19, 31, 17, 25.

2. Find the range: 3.4, 7.8, 5.1, 9.6, 4.2.

3. A runner's times are 12.4 s, 11.9 s, 13.1 s, 12.0 s and 12.7 s. Find the range.

4. Set A has minimum 18 and maximum 47. Set B has minimum 25 and maximum 61. Find both ranges.

5. Which set has the greater spread: A = 12, 15, 17, 20, 22 or B = 8, 14, 18, 23, 24?

6. The range of five numbers is 36. The smallest is 14. What is the largest?

7. A data set has maximum 82 and range 29. Find its minimum.

8. Explain why the range alone does not tell us how the values are distributed.

9. Two classes have the same range of 20. Does that mean their data sets are identical? Explain.

10. Give a five-number data set with range 18 and median 12.

Answer Key — Worksheet 4: Range and Spread

1. 17

2. 6.2

3. 1.2 s

4. A = 29; B = 36

5. B, because its range is 16 compared with A's 10.

6. 50

7. 53

8. Different data sets can have the same minimum and maximum but very different values between them.

9. No. The minimum and maximum could be the same while all the middle values differ.

10. Example: 3, 10, 12, 15, 21.

Worksheet 5: Compare Data Sets

Name: _____ Date: _____

1. Class A: 12, 15, 15, 18, 20, 22, 24. Class B: 9, 14, 16, 18, 18, 21, 30. Find the mean of each class.

2. Find the median of each class.

3. Find the range of each class.

4. Which class has the higher mean, and which has the smaller range?

5. A = 4, 5, 5, 6, 6, 6, 7 and B = 2, 4, 6, 6, 8, 10, 12. Compare their means and medians.

6. A shop's daily sales are: 120, 125, 128, 130, 132. Another shop records: 90, 100, 128, 150, 167. Compare their ranges and explain what this suggests.

7. Two teams have mean scores of 18. Team X has range 4; Team Y has range 16. What does this suggest about consistency?

8. A data set has mean 25 and median 21. What might this suggest about unusually high values?

9. Which measure would you choose to describe house prices in an area with a few extremely expensive houses: mean or median? Explain.

10. Create two five-number data sets with the same mean but different ranges.

Answer Key — Worksheet 5: Compare Data Sets

1. Class A mean = 18; Class B mean = 18.

2. Class A median = 18; Class B median = 18.

3. Class A range = 12; Class B range = 21.

4. Neither has a higher mean; both are 18. Class A has the smaller range.

5. A mean = 39/7 ≈ 5.57, median = 6. B mean = 48/7 ≈ 6.86, median = 6. B has the higher mean; medians are equal.

6. Shop 1 range = 12; Shop 2 range = 77. Shop 1 is much less variable.

7. Team X is more consistent because its scores are closer together.

8. The mean being higher than the median may indicate some relatively high values pulling the mean upward.

9. Median, because a few very expensive houses can pull the mean upward.

10. Example A: 8, 9, 10, 11, 12 (mean 10, range 4); B: 2, 6, 10, 14, 18 (mean 10, range 16).

Worksheet 6: Statistics Challenge

Name: _____ Date: _____

1. Five numbers have mean 18. Four are 11, 15, 21 and 24. Find the fifth number.

2. A set has six values with median 14. The ordered values are 7, 11, x, 16, 19, 25. Find x if the median is exactly 14.

3. A data set has mean 20 and five values. Four values are 12, 17, 23 and 28. Find the fifth value.

4. A data set has range 30 and minimum 7. What is its maximum?

5. The values 5, 8, 10, 12, 15 have mean 10. If 25 is added, what is the new mean?

6. A student says, “If two data sets have the same mean, they must have the same median.” Give a counterexample.

7. The mean of 8 numbers is 15. One number, 31, is removed. Find the mean of the remaining 7 numbers.

8. A data set has median 16. One very large value is added. What can happen to the mean and median?

9. Find a six-number data set with mean 12, median 11 and range 18.

10. A coach wants one number to describe a set of salaries containing several unusually high salaries. Which measure would usually be more representative: mean, median or range? Explain.

Answer Key — Worksheet 6: Statistics Challenge

1. 19

2. x = 12, because (x + 16)/2 = 14.

3. 20

4. 37

5. 12.5

6. Example: A = 1, 2, 3, 4, 10 (mean 4, median 3); B = 0, 2, 4, 5, 9 (mean 4, median 4). Same mean, different medians.

7. Total = 120; remaining total = 89; mean = 89/7 ≈ 12.71.

8. The mean will usually increase substantially; the median may stay the same or change only slightly depending on where the new value falls in the ordered data.

9. One valid answer is 1, 11, 11, 11, 19, 19. Mean = 72/6 = 12; median = (11 + 11)/2 = 11; range = 19 – 1 = 18.

10. Median, because unusually high salaries can pull the mean upward, while range only describes spread.