📊 Class 7 Data Handling Worksheet

By Thinking Juggernaut

Name: _____ Date: _____ Score: ____/24

📚 Understanding Data Handling

Data Handling is the process of collecting, organizing, analyzing, and presenting data to draw meaningful conclusions.

Key Concepts:

Measures of Central Tendency:

1. **Mean (Average):** Sum of all observations ÷ Number of observations
Formula: Mean = (Sum of all values) / (Total number of values)

2. **Median:** Middle value when data is arranged in order
• If n is odd: Median = Middle value
• If n is even: Median = Average of two middle values

3. **Mode:** Most frequently occurring value in the data

4. **Range:** Difference between highest and lowest values
Range = Highest value - Lowest value

Data Representation:

- **Bar Graph:** Uses bars of equal width to represent data
- **Double Bar Graph:** Compares two sets of data side by side
- **Pie Chart:** Shows data as sectors of a circle (total = 360°)
- **Frequency Distribution Table:** Shows how often each value occurs

Important Notes:

- Mean is affected by extreme values
- Median is not affected by extreme values
- There can be no mode, one mode, or multiple modes
- In a pie chart: Angle for each category = (Value/Total) × 360°

📝 Sample Problem

Problem: Find the mean, median, mode, and range of the data: 5, 8, 3, 8, 10, 8, 6

Step 1: Write the data

5, 8, 3, 8, 10, 8, 6

Step 2: Calculate Mean

Sum = 5+8+3+8+10+8+6 = 48; Count = 7; Mean = 48÷7 = 6.86

Step 3: Find Median (arrange in order)

Arranged: 3, 5, 6, 8, 8, 8, 10 → Middle value = 8

Step 4: Find Mode (most frequent)

8 appears 3 times (most frequent) → Mode = 8

Step 5: Calculate Range

Range = Highest - Lowest = 10 - 3 = 7

Final Answers:

• Mean = 6.86 (approximately 6.9)

• Median = 8

• Mode = 8

• Range = 7

💡 **Remember:** Always arrange data in ascending order before finding median!

Part A: Warm-up Questions

⭐ Easy Level

1. Find the mean of: 4, 7, 10, 13, 16

Hint: Mean = Sum of all values ÷ Number of values

2. Find the median of: 12, 15, 9, 18, 21

3. Find the mode of: 3, 5, 7, 5, 9, 5, 11

4. Find the range of: 25, 30, 18, 42, 35

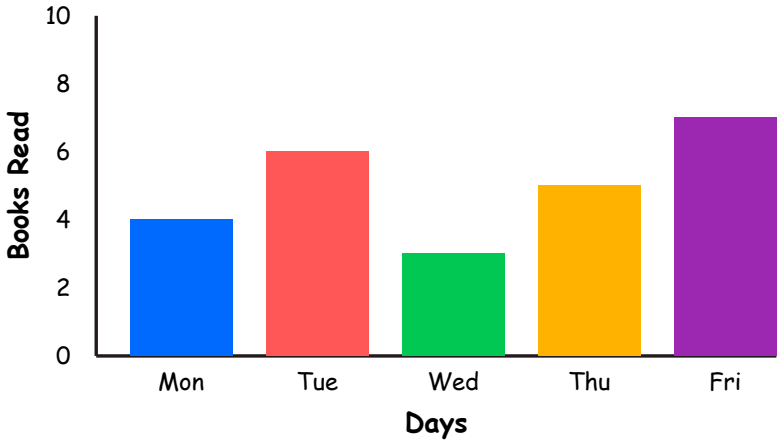
5. The marks obtained by 5 students are: 65, 70, 75, 80, 85. Find the mean marks.

6. **True or False:** The median is always one of the values in the data set.

☐ True ☐ False

7. Find the mode: 2, 4, 6, 8, 10

8. Bar Graph Problem: The bar graph shows books read by students in a week.



a) How many books were read on Tuesday? _____

b) On which day were the most books read? _____

Part B: Practice Questions

☆☆ Medium Level

9. The heights (in cm) of 6 students are: 145, 152, 148, 156, 150, 149. Find the mean and median height.

10. Find the mode and range: 23, 45, 67, 45, 89, 45, 34, 67

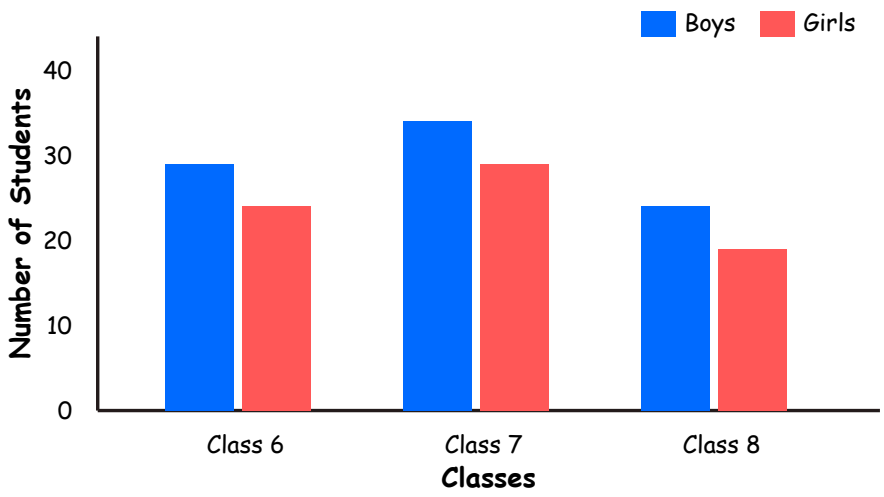
11. The mean of five numbers is 18. If four of the numbers are 15, 20, 22, and 13, find the fifth number.

12. The following table shows the favorite fruits of 120 students. Find the angle for each sector in a pie chart.

Fruit	Number of Students	Angle
Mango	40	
Apple	30	
Banana	25	
Orange	25	

13. The median of the data: 5, 8, x, 12, 15 (arranged in ascending order) is 9. Find the value of x.

14. **Double Bar Graph:** The graph shows the number of boys and girls in Classes 6, 7, and 8.



a) How many boys are in Class 7? _____

b) Which class has equal boys and girls? _____

c) Find total students in Class 6: _____

15. The mean of 8 numbers is 25. If one number 35 is removed, find the new mean.

16. **Word Problem:** Ravi scored the following marks in 5 subjects: English 75, Hindi 68, Math 82, Science 79, Social Studies 71. Find his mean marks and identify if he passed (pass mark is 75).

17. In a frequency distribution, the data values are: 10, 20, 30, 40 with frequencies 3, 5, 7, 5 respectively. Find the mean.

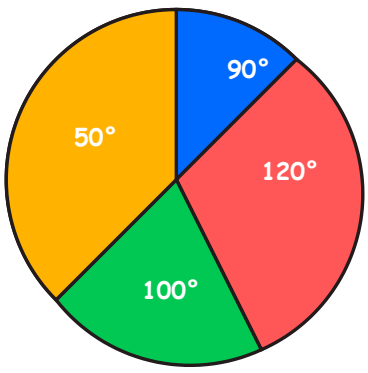
18. The range of a data set is 15 and the lowest value is 23. What is the highest value?

Part C: Challenge Questions

☆☆☆ Hard Level

19. The mean of 10 numbers is 42. If each number is increased by 8, what will be the new mean?

20. **Pie Chart Problem:** A school has 720 students. The pie chart shows the distribution by class.



Total Students: 720

a) How many students are in Class 6? _____
b) How many students are in Class 7? _____
c) Which class has the least students? _____

21. The median of the data: 3, 5, 7, x, 11, 13, 15 is 9. The mode is 7. Find the possible value(s) of x.

22. **Complex Data Problem:** A cricket team played 5 matches and scored: 250, 280, x, 310, 290 runs. If the mean score is 280 runs, find x. Also, find the median score.

23. The mean of three numbers is 15. Two new numbers 18 and 22 are added to the data. Find the new mean of all five numbers.

24. **Real-Life Problem:** A shopkeeper recorded the sales (in ₹) for 6 days: 1200, 1500, 1800, x, 2100, 1950. The median sales is ₹1725. Find the value of x and calculate the mean sales for the week.

📝 Answer Key

Part A: Warm-up (Easy)

1. Mean = (4+7+10+13+16)÷5 = 50÷5 = 10

2. Arranged: 9, 12, 15, 18, 21; Median = 15

3. Mode = 5 (appears 3 times)

4. Range = 42 - 18 = 24

5. Mean = (65+70+75+80+85)÷5 = 375÷5 = 75

6. False (in even number of values, median can be average)

7. No mode (all values appear once)

8. a) 6 books, b) Friday

Part B: Practice (Medium)

9. Mean = 900÷6 = 150 cm; Arranged: 145,148,149,150,152,156; Median = (149+150)÷2 = 149.5 cm

10. Mode = 45; Range = 89 - 23 = 66

11. Sum = 18×5 = 90; 15+20+22+13+x = 90; x = 20

12. Mango: 120°, Apple: 90°, Banana: 75°, Orange: 75°

13. Median (middle value) = x; x = 9

14. a) 35 boys, b) None (Class 8 has 25 each), c) 54 students

15. Original sum = 25×8 = 200; New sum = 165; New mean = 165÷7 ≈ 23.57

16. Mean = 375÷5 = 75; Yes, passed (mean = pass mark)

17. Mean = (10×3+20×5+30×7+40×5)÷20 = 570÷20 = 28.5

18. Highest = 23 + 15 = 38

Part C: Challenge (Hard)

19. New mean = 42 + 8 = 50

20. a) 90°/360° × 720 = 180 students, b) 120°/360° × 720 = 240 students, c) Class 9

(100 students)

21. x = 9 (for median); But mode is 7, so x = 7; Verify: 3,5,7,7,11,13,15 → median = 7 ✗; x must be 9

22. 250+280+x+310+290 = 280×5 = 1400; x = 270; Arranged: 250,270,280,290,310; Median = 280

23. Original sum = 15×3 = 45; New sum = 45+18+22 = 85; New mean = 85÷5 = 17

24. Arranged: 1200,1500,x,1800,1950,2100 or 1200,1500,1800,x,1950,2100; Median = (x+1800)÷2 = 1725 or (1800+x)÷2 = 1725; x = 1650; Mean = 9750÷6 = 1625

📊 Scoring Guide

Total Questions: 24 | Total Marks: 24

Score Range	Performance Level	What to Do Next
20-24	⭐⭐⭐ Excellent!	Outstanding! You've mastered data handling. Move on to probability and advanced statistics concepts.
15-19	⭐⭐ Very Good!	Great work! Practice more on pie charts and finding values when mean/median is given.
10-14	⭐ Good Effort!	Keep practicing! Focus on understanding when to use mean, median, and mode. Practice arranging data in order.
0-9	Keep Trying!	Review the formulas section carefully. Practice calculating mean, median, and mode with simple data sets daily.

📝 **Tips for Improvement:**

- **Always arrange data first:** For median, arrange in ascending/descending order
- **Count carefully:** Make sure you count all values when finding mean
- **Check for mode:** Look for the most frequently occurring value(s)
- **Pie chart formula:** Remember Angle = (Value/Total) × 360°

- **Verify answers:** After finding mean, multiply by count to check if sum matches
- **Read graphs carefully:** Pay attention to scale and labels on bar graphs

🎯 Common Mistakes to Avoid:

- ❌ Not arranging data before finding median
- ❌ Confusing mean and median
- ❌ Forgetting to divide by total count when finding mean
- ❌ Misreading bar graph scales
- ❌ Calculation errors in pie chart angles (total must be 360°)
- ❌ Finding mode without checking frequency of all values

✨ Great Job Completing This Worksheet! ✨

Keep practicing data handling and statistics!

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