

# Mean, Median, Mode, and Range

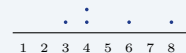
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## Quick Review and Helpful Hints

For a data set: the *mean* is the sum divided by how many numbers there are; the *median* is the middle value once the data is ordered (average the two middle values if there is an even count); the *mode* is the value that appears most often; the *range* is the largest value minus the smallest.

▶ **Example:** Find the mean of 4, 8, 6, 4, 3. **Work:** Add the values:  
 $4 + 8 + 6 + 4 + 3 = 25$ . Then divide by how many there are, which is 5:  
 $\frac{25}{5}$ .

★ **Answer:** 5



The data 3, 4, 4, 6, 8 as a dot plot.

### Practice Problems

Find the requested measure for each data set.

- |                           |       |                              |       |
|---------------------------|-------|------------------------------|-------|
| 1. Mean of 2, 4, 6        | _____ | 8. Range of 20, 5, 12        | _____ |
| 2. Mean of 5, 5, 8, 10, 2 | _____ | 9. Mean of 10, 20, 30, 40    | _____ |
| 3. Median of 3, 7, 9      | _____ | 10. Median of 8, 3, 5, 9, 1  | _____ |
| 4. Median of 2, 4, 6, 8   | _____ | 11. Mode of 6, 7, 7, 8, 8, 8 | _____ |
| 5. Mode of 3, 3, 5, 7     | _____ | 12. Range of 2, 2, 2         | _____ |
| 6. Mode of 1, 2, 2, 2, 5  | _____ | 13. Mean of 7, 9, 11, 13     | _____ |
| 7. Range of 4, 9, 15      | _____ | 14. Median of 12, 4, 8, 16   | _____ |

### Word Problems

15. Test scores are 80, 90, 85, 95, 100. What is the mean score?  
 \_\_\_\_\_
16. In the data 3, 5, 7, 7, 9, what is the mode?  
 \_\_\_\_\_
17. Daily highs were 60, 72, 68, 75, 65. What is the range?  
 \_\_\_\_\_
18. Ages at a table are 10, 12, 14, 16, 18. What is the median age?  
 \_\_\_\_\_



## Answer Keys

1. 4

2. 6

3. 7

4. 5

5. 3

6. 2

7. 11

8. 15

9. 25

10. 5

11. 8

12. 0

13. 10

14. 10

15. 90

16. 7

17. 15

18. 14

### Step-by-Step Explanations

**1.** Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The mean is the sum divided by the count. Add:  $2 + 4 + 6 = 12$ , then divide by 3:  $12 \div 3 = 4$ . So the final answer is 4.

**2.** A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Add all five:  $5 + 5 + 8 + 10 + 2 = 30$ , then divide by 5:  $30 \div 5 = 6$ . So the final answer is 6.

**3.** Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The data is already in order, so the middle value is 7. So the final answer is 7.

**4.** Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is With an even count, average the two middle values:  $\frac{4+6}{2} = 5$ . So the final answer is 5.

**5.** Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The mode is the most frequent value – 3 appears twice. So the final answer is 3.

**6.** A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is 2 appears three times, more than any other, so the mode is 2. So the final answer is 2.

**7.** Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Range is the largest minus the smallest:  $15 - 4 = 11$ . So the final answer is 11.

**8.** Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Largest minus smallest:  $20 - 5 = 15$ . So the final answer is 15.

**9.** Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Add:  $10 + 20 + 30 + 40 = 100$ , then divide by 4:  $100 \div 4 = 25$ . So the final answer is 25.

**10.** A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Put them in order: 1, 3, 5, 8, 9. The middle value is 5. So the final answer is 5.

**11.** Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is 8 appears three times, the most, so the mode is 8. So the final answer is 8.

**12.** Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Largest minus smallest:  $2 - 2 = 0$ . So the final answer is 0.

**13.** Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Add:  $7 + 9 + 11 + 13 = 40$ , then divide by 4:  $40 \div 4 = 10$ . So the final answer is 10.

**14.** A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Put them in order: 4, 8, 12, 16. Average the two middle:  $\frac{8+12}{2} = 10$ . So the final answer is 10.

**15.** Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The mean is the total over the count:  $80 + 90 + 85 + 95 + 100 = 450$ , then  $450 \div 5 = 90$ . So the final answer is 90.

**16.** Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The most frequent value is 7 (it appears twice). So the final answer is 7.

**17.** Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Largest minus smallest:  $75 - 60 = 15$ . So the final answer is 15.

**18.** A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The values 10, 12, 14, 16, 18 are already ordered, so the middle is 14. So the final answer is 14.



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