

SAMPLE PAGES FOR

SOUTH CAROLINA 5TH GRADE MATHEMATICS

CHALLENGE THE

PALMETTO **A**CHIEVEMENT **C**HALLENGE **T**EST

BY

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**MEAN, MEDIAN, MODE
AND RANGE**

MEAN

Mean is another word for average.

$$\text{Mean} = \frac{\text{all the numbers added together}}{\text{how many numbers you added}}$$

EXAMPLES

90, 80, 50, 70, 60

Find the mean.

90	
80	Add the numbers.
50	
70	
+ 60	
350	Total

$$\frac{350}{5} = 70$$

Divide the total by 5.
70 is the mean.

25, 65, 35, 45, 95, 35

Find the mean.

25	
65	Add the numbers.
35	
45	
95	
+ 35	
300	Total

$$\frac{300}{6} = 50$$

Divide the total by 6.
50 is the mean.

Suppose you know the mean, but you are missing one of the numbers.

EXAMPLES

85 = mean.

86, 83, 81, ___

Find the missing number.

You have 4 numbers that have a mean of 85. Multiply 85×4 to get the total sum needed.

$$85 \times 4 = 340 \text{ (total sum)}$$

Add the 3 numbers that you know.

$$86 + 83 + 81 = 250 \text{ (sum you have)}$$

Now subtract the sum you have from the total sum to find your missing number.

$$340 - 250 = 90 \text{ (missing number)}$$

73 = mean.

75, 94, 32, 75, ___

Find the missing number.

Multiply the mean of 73 by 5 (numbers you have).

$$73 \times 5 = 365 \text{ (total sum)}$$

Add the numbers you are given.

$$75 + 94 + 32 + 75 = 276 \text{ (sum you have)}$$

Subtract the sum you have from the total sum to find your missing number.

$$365 - 276 = 89 \text{ (missing number)}$$

PRACTICE

Find the mean (average) of each set of numbers.

1. 3, 7, 10, 12

4. 50, 45, 35, 20, 10

2. 7, 8, 21, 32

5. 95, 85, 80, 75, 70, 60

3. 30, 40, 80, 90, 100

6. 35, 85, 25, 75, 15

7. 56, 65, 89, 100, 135

14. 60, 65, 70, 75

8. 35, 50, 50

15. 23, 12, 22, 33

9. 9, 12, 15, 17, 19

16. 1, 2, 3, 4, 5

10. 100, 100, 100, 75, 25

17. 50, 100, 50, 100

11. 200, 400, 800, 300

18. 1, 3, 5, 7, 9

12. 55, 95, 105

19. 1,000, 2,000, 3,000, 2,000

13. 5, 10, 15, 20, 25

20. 2, 4, 6, 8, 10

PRACTICE

Find the missing data.

1. Mean = 37.
40, 29, 50, ?

8. Mean = 31.
63, 53, 20, 10, ?

15. Mean = 88.
90, 80, 75, ?

2. Mean = 90.
100, 95, 92, 85, ?

9. Mean = 100.
300, 75, 100, 10, ?

16. Mean = 45.
35, 75, ?

3. Mean = 40.
50, 30, 75, 15, ?

10. Mean = 130.
200, 100, 125, ?

17. Mean = 80.
100, 100, 20, ?

4. Mean = 75.
85, 60, 25, ?

11. Mean = 70.
89, 34, 40, 23, ?

18. Mean = 20.
50, 10, 5, 4, ?

5. Mean = 50.
65, 80, 73, 30, ?

12. Mean = 91.
100, 140, 60, 75, ?

19. Mean = 35.
80, 20, 5, ?

6. Mean = 81.
70, 93, 69, ?

13. Mean = 39.
50, 10, 29, 13, ?

20. Mean = 70.
80, 100, 30, ?

7. Mean = 25.
10, 29, 37, 20, ?

14. Mean = 48.
50, 60, 30, 21, ?

21. Mean = 35.
29, 36, 47, ?

REVIEW

- How do you find the mean of these numbers? 10, 15, 14, 13
 - Add all the numbers together.
 - Add all the numbers together and divide by 4.
 - Add all the numbers together and divide by 10.
 - Divide all the numbers by 4.
- What is the mean of 50, 60, 110, 120, and 190?
 - 53
 - 530
 - 106
 - 424
- If the mean is 52, what is the missing number? 60, 34, 29, ?
 - 85
 - 208
 - 80
 - 75
- What expression shows how to find the mean of 75, 93, 65, 14, 125?
 - $\frac{75 + 93 + 65 + 14 + 125}{5}$
 - $5(75 + 93 + 65 + 14 + 125)$
 - $\frac{75 + 93 + 65 + 14 + 125}{5}$
 - $75 + 93 + 65 + 14 + 125$
- What is the first step in finding the missing data? Mean = 34. 29, 14, 83, ?
 - $\frac{34}{4}$
 - $\frac{29 + 14 + 83}{3}$
 - $29 + 14 + 83$
 - 34×4
- What is the second step in finding the mean of 10, 30, and 50?
 - $\times 3$
 - $10 + 30 + 50$
 - $90 - 3$
 - $\div 3$
- Find the mean of 220, 240, 280, 200.
 - 235
 - 940
 - 313
 - 470
- Find the missing data. Mean = 28. 71, 10, 6, 37, ?
 - 28
 - 124
 - 140
 - 16
- What is the first step in finding the mean of 1, 3, 7, 9?
 - 4×4
 - $1 + 3 + 7 + 9$
 - $\div 4$
 - $\frac{1 + 3 + 7 + 9}{4}$
- What expression shows how to find the mean of 50, 40, 30?
 - $\frac{3}{50 + 40 + 30}$
 - $3(50 + 40 + 30)$
 - $50 + 40 + 30$
 - $\frac{50 + 40 + 30}{3}$

11. The mean for the math test was 88.7. Which of the following is correct?
- Jane's score of 89.6 was slightly above average.
 - Marlowe's score of 90 was the highest in the class.
 - Ann's score of 87.3 was the highest girl's score.
 - The lowest score was 70.3.
12. Is 25 the mean of 15, 30, 10?
- yes
 - no
13. Mean = 57. 14, 80, 70, 15, ?
- 80
 - 179
 - 285
 - 106
14. Mean = ?. 100, 10, 30, 40, 70
- 10
 - 250
 - 40
 - 50
15. What is the first step in finding the missing data? Mean = 36. 17, 18, 89, 95, ?
- $17 + 18 + 89 + 95$
 - 36×5
 - $5 \div 36$
 - 95×5
16. What is the mean of 5, 10, 15, 20, 10?
- 60
 - 1.5
 - 12
 - 15
17. Marce's math scores were 80, 90, 100 and 78. What was the mean score?
- 87
 - 80
 - 78
 - 95
18. John's mean spelling score is 93. He has scores of 100, 95, 93, 80, and ?. What is the missing score?
- 87
 - 97
 - 90
 - 93
19. 40 = mean. 70, 30, 10, 50, 40, ?
- 200
 - 240
 - 55
 - 40
20. What expression shows how to find the mean of 20, 60, 90?
- $(20 + 60 + 90)3$
 - $\frac{20 + 60 + 90}{3}$
 - $\frac{20 + 60}{90}$
 - $\frac{20 \times 60 \times 90}{3}$
21. Find the mean of 100, 90, 10, 40.
- 85
 - 25
 - 240
 - 60

MEDIAN

When a group of numbers is ordered from smallest to largest, the median is the middle number.

EXAMPLES

Find the median.

50, 45, 30, 65, 21 (odd amount of numbers)

21, 30, 45, 50, 65 Order the numbers from smallest to largest.

45 is the median. Find the middle number.

Find the median.

25, 50, 60, 25, 70, 65 (even amount of numbers)

25, 25, 50, 60, 65, 70 Order the numbers.

$\frac{50 + 60}{2} = \frac{110}{2} = 55$ 2 numbers are in the middle. Add the numbers and divide by 2 to get the median.

55 is the median.

MODE

The number that appears the most often in a group is the mode.

EXAMPLES

25, 69, 19, 25, 19, 25, 25

What is the mode of this group of numbers?

25 - 4 times

69 - 1 time

19 - 2 times

25 is the mode because it appears the most often.

30, 40, 30, 40, 29, 13

What is the mode of this group of numbers?

30 - 2 times

40 - 2 times

29 - 1 time

13 - 1 time

30 and 40 are the modes because they appear the most often.

RANGE

Subtract the largest and the smallest numbers in a group of numbers to find the range.

EXAMPLE

250, 190, 345, 117, 500, 300

What is the range of this group of numbers?

$$\begin{array}{r} 500 \text{ (largest number)} \\ -117 \text{ (smallest number)} \\ \hline 383 = \text{range} \end{array}$$

PRACTICE

Find the median, mode and range.

1. 95.86, 75.88, 65.00, 35.25, 50.00, 86.45

2. 12, 3, 4, 8, 7, 8, 9, 10, 2

3. 12, 16, 16, 19, 30, 16, 25

4. 178, 176, 175, 178

5. 200, 136, 145, 386, 110, 136, 400

6. 90, 85, 83, 76, 83, 76

7. 8, 7, 6, 1, 1, 3, 7

8. 60, 52, 41, 46, 43, 40, 38

9. 9, 8, 1, 2, 2, 5, 8

10. 9, 3, 6, 12, 15, 4, 9, 9, 2

11. 986, 981, 986, 984

12. 105, 116, 125, 78, 78

13. 171, 178, 176, 175, 180

14. 82, 85, 96, 92, 90, 85, 98

15. 25, 40, 68, 85, 32, 90, 59, 85, 16, 79, 88, 25, 46

REVIEW

- What is the first step in finding the median of 11, 3, 5, and 9?
 - Put in order from largest to smallest.
 - Put in order from smallest to largest.
 - Add the numbers together.
 - Add the numbers, divide by 4.
- The range in dollars of salaries was \$4,895. If the largest salary was \$25,490, how much was the smallest salary?
 - no range
 - \$4,895
 - \$20,595
 - \$30,385
- What 2 numbers are in the middle of this set? 8, 3, 1, 6, 15, 7
 - 1, 6
 - 7, 8
 - 6, 7
 - 3, 1
- The mode of 50, 40, 30, 20, 20 is __.
 - 20
 - 30
 - 32
 - 25
- What 2 numbers must you divide to find the median of 5, 10, 8, 3, 7, 6?
 - 3, 5
 - 8, 10
 - 5, 6
 - 6, 7
- What is the median of 80, 50, 40, 50?
 - 50
 - 45
 - 40
 - 55
- Mrs. Lowe went to two malls looking for purses. In 8 stores, the prices varied by \$19.25. Which measure did she use to get this data?
 - mean
 - median
 - mode
 - range
- Find the median. 20, 80, 70, 30, 15, 70, 30
 - 25
 - 30
 - 70
 - 45
- The most popular color in grade 5 is blue. What measure was used to determine this data?
 - mode
 - median
 - range
 - mean
- A basketball team had scores of 92, 75, 51, 48. What is the median score?
 - 85
 - 75
 - 63
 - 84

11. Prices for apples were 89¢, 75¢, 78¢, 65¢, and 88¢ per pound. What is the relationship between the mean and median price?
- The mean is one point higher than the median.
 - The mean is one point lower than the median.
 - The mean is two points lower than the median.
 - The mean and median are the same.
12. What 2 numbers would be divided to find the median of these numbers? 80, 25, 34, 95
- 95, 80
 - 34, 80
 - 25, 34
 - 80, 25
13. Cars were priced at \$12,500, \$13,800, \$11,500, \$15,000, and \$14,100. What is the median price of the cars?
- \$13,380
 - \$11,500
 - \$12,500
 - \$13,800
14. To ride a popular roller coaster, there must be a median weight of 120 pounds in each car. Will this group ride the roller coaster?
- Pounds: 125, 100, 75, 210, 145, 315
- No, their median weight is 129.
 - No, their median weight is 135.
 - Yes, their median weight is 125.
 - No, their median weight is 119.
15. Arrange these numbers from smallest to largest.
- 15, 85, 24, 37, 15, 4
- 15, 85, 24, 37, 15, 4
 - 85, 37, 24, 15, 15, 4
 - 4, 15, 15, 24, 37, 85
 - 15, 15, 24, 37, 4, 85
16. The mode temperature for January was 36°. Which of the following is correct?
- 36° was the highest temperature.
 - Jan. 21's temperature of 27° was below average.
 - More days had a temperature of 36° than any other temperature.
 - No temperature was below freezing.
17. If 80 and 90 were the two middle numbers, what would be the median?
- 80
 - 85
 - 90
 - 170
18. Six bank tellers made these incomes last year: \$28,000, \$29,000, \$30,000, \$40,000, \$25,000, \$31,000. The bank tellers wanted a raise, so what measure would they use to convince their boss of their need for a raise?
- mean
 - range
 - mode
 - median

19. If attendance for 5 days was 5,175, 6,932, 4,367, 7,136, and 4,800, what was the median attendance?
- a. 4,367
 - b. 5,175
 - c. 4,800
 - d. 4,617

20. Arrange 25, 90, 36, 17, and 56 from smallest to largest.
- a. 17, 25, 36, 56, 90
 - b. 90, 56, 25, 36, 17
 - c. 90, 56, 36, 25, 17
 - d. 17, 25, 56, 36, 90

21. Arrange the numbers in question 20 from largest to smallest.
- a. 17, 25, 36, 56, 90
 - b. 90, 56, 25, 36, 17
 - c. 90, 56, 36, 25, 17
 - d. 17, 25, 56, 36, 90

22. What is the median price of these bananas? \$.96, \$.76, \$.86, \$.55, \$.49
- a. \$.54
 - b. \$.55
 - c. \$.76
 - d. \$.82

23. 70, 30, 40, 25 Which 2 numbers would you use to find the median?
- a. 70, 40
 - b. 25, 30
 - c. 25, 40
 - d. 30, 40

24. What is the range of these scores? 80, 80, 70, 70, 60, 60
- a. 60
 - b. 80
 - c. 20
 - d. 65

25. Which set of numbers has a median of 80?
- a. 30, 20, 90, 40, 50
 - b. 80, 80, 20, 90, 50
 - c. 100, 30, 70, 60, 100
 - d. 29, 39, 69, 24

26. All the following have a median of 20 except _____.
- a. 40, 40, 20, 50, 10
 - b. 5, 6, 20, 3, 30, 40, 50
 - c. 10, 10, 30, 40
 - d. 50, 60, 50, 20, 10, 15, 20

27. What is the range of sales?

Day	Sales
Monday	70
Tuesday	10
Wednesday	30
Thursday	40
Friday	50
Saturday	60

- a. 50
- b. 40
- c. no range
- d. 60