

## Day 14 - Central Tendency

Mean: add all numbers up and divide by how many numbers there are.

Median: arrange from small to big and find the middle

Mode: find the most occurring number

Example: 3, 5, 4, 4, 2, 5, 8

## Your Turn

Find the mean, median, and mode for

1 2, 3, 5, 4, 1, 5, 5

**OGT Preparation #14**  
**DA02 – central tendency**

Name \_\_\_\_\_

1. The mean weight of the five returning members for Cardinal High School's wrestling team is 168 pounds. Three freshman wrestlers joined the team. If their weights are 140, 172 and 168 pounds, what is the mean weight of this year's team?

- A. 160 pounds      B. 162 pounds      C. 165 pounds      D. 168 pounds

2. Aaron wants the mean of his 5 geometry test scores to be at least 90%. His scores on the first four tests are 85%, 83%, 96% and 91%. What is the minimum score Aaron can earn on the fifth test to meet his goal?

- A. 89%              B. 90%              C. 95%              D. 100%

3. To test the effect of a new medication on reaction time, two groups of 5 adults were asked to step on a pedal as soon as they saw a flashing light on a video screen. One group received the medication, and the other group did not receive the medication.

The reaction times, in fractions of a second, are shown for each of the two groups.

Group receiving medication: 0.55, 0.65, 0.60, 0.50, 0.70

Group not receiving medication: 0.20, 0.30, 0.25, 0.20, 0.30

How much longer is the mean reaction time of the group receiving the medication than the group **not** receiving the medication?

- A. 0.35 seconds      B. 0.40 seconds      C. 0.50 seconds      D. 1.75 seconds

4. Weekly salaries of the employees at a local video store are shown in the table below.

**Weekly Salaries at Video Store**

| <b>Weekly Salaries</b> | <b>Number of Employees at this Salary</b> |
|------------------------|---|
| \$1,000                | 1   |
| \$ 500                 | 2   |
| \$ 350                 | 4   |
| \$ 120                 | 8   |
| \$ 80                  | 6   |

What is the mean weekly salary at this video store?

- A. \$230.48      B. \$242.00      C. \$322.67      D. \$350.00

5. A video game company reports the sales of video games for the first 11 months.

| <b>Month</b> | <b>Sales (In millions)</b> |
|--------------|----------------------------|
| 1            | 4.5                        |
| 2            | 5.2                        |
| 3            | 4.7                        |
| 4            | 4.6                        |
| 5            | 5.2                        |
| 6            | 4.7                        |
| 7            | 5.6                        |
| 8            | 5.3                        |
| 9            | 4.8                        |
| 10           | 5.2                        |
| 11           | 4.8                        |

The company's goal is to sell an average of 5 million games per month. What is the minimum number of video games the company must sell in the 12th month to meet its goal?

- A. 4.8      B. 5.0      C. 5.2      D. 5.4

6. SA (2 points) The following table contains math contest scores of two teams in a high school math contest.

| <b>Team A</b> | <b>Team B</b> |
|---------------|---------------|
| 90            | 87            |
| 85            | 100           |
| 87            | 87            |
| 83            | 78            |
| 80            | 78            |

In your **Answer Document**, calculate the mean and median for each team. Determine which team scored better in the contest by comparing these measures.

7. [ER] The average salary for all department store workers in a certain area is \$255 a week. The weekly salaries of the 7 employees in the Acme Department Store are given in the table below.

**Acme Employees' Salaries**

| <b>Employee Number</b> | <b>Salary</b> |
|------------------------|---------------|
| Employee 1             | <b>\$240</b>  |
| Employee 2             | <b>\$245</b>  |
| Employee 3             | <b>\$245</b>  |
| Employee 4             | <b>\$250</b>  |
| Employee 5             | <b>\$252</b>  |
| Employee 6             | <b>\$260</b>  |
| Employee 7             | <b>\$420</b>  |

In your **Answer Document**, determine the measures of center (mean, median and mode) of the 7 salaries. Specify which of these measures of center the management could use to represent the salaries in an argument against pay increases. Explain your answer. Specify which of these measures of center the labor union could use to represent the salaries in an argument for pay increases. Explain your answer.

8. Consider the following scores: 12, 56, 62, 66, 74, 83, 88, 90, 93, 96

If the outlier, 12, is removed from the set above, what is the approximate increase in the mean of the remaining scores?

- A. 3            B. 7            C. 12            D. 84

9. In 1993, the median age of brides in Ohio was 27.0 years and the median age of grooms was 28.9 years.

Based on this information, which of the following statements must be true?

- A. Most brides were 27 years old.
- B. The youngest groom was 28.9 years old.
- C. Half of the grooms were 28.9 years old or older.
- D. All the grooms were older than the brides were.

10. A set of data contains 10 negative numbers and 4 positive numbers. Which one of these statements must be true?

- A. The mean is a negative number.
- B. The median is a negative number.
- C. The mode is a negative number.
- D. The range is a negative number.

11. The noon temperatures are recorded for 7 consecutive days in Cleveland, Ohio. The sum of the 7 temperatures is positive.

Which statement about these 7 temperatures must be true?

- A. The mean of the temperatures is positive.
- B. The mode of the temperatures is positive.
- C. The median of the temperatures is positive.
- D. The minimum of the temperatures is positive.

1. The mean weight of the five returning members for Cardinal High School's wrestling team is 168 pounds. Three freshman wrestlers joined the team. If their weights are 140, 172 and 168 pounds, what is the mean weight of this year's team?

- A. 160 pounds    B. 162 pounds    **C. 165 pounds**    D. 168 pounds

$$\begin{array}{r} 168 \\ 168 \\ 103 \\ 108 \\ 168 \\ 140 \\ 172 \\ \hline 168 \\ \hline 1320 \\ \hline 8 \end{array}$$

2. Aaron wants the mean of his 5 geometry test scores to be at least 90%. His scores on the first four tests are 85%, 83%, 96% and 91%. What is the minimum score Aaron can earn on the fifth test to meet his goal?

- 355    A. 89%    B. 90%    **C. 95%**    D. 100%

3. To test the effect of a new medication on reaction time, two groups of 5 adults were asked to step on a pedal as soon as they saw a flashing light on a video screen. One group received the medication, and the other group did not receive the medication.

The reaction times, in fractions of a second, are shown for each of the two groups.

Group receiving medication: 0.55, 0.65, 0.60, 0.50, 0.70

Group not receiving medication: 0.20, 0.30, 0.25, 0.20, 0.30

$3/5 = .6$

$1.25/5 = .25$

$.6 - .25 = .35$

How much longer is the mean reaction time of the group receiving the medication than the group not receiving the medication?

- A. 0.35 seconds**    B. 0.40 seconds    C. 0.50 seconds    D. 1.75 seconds

4. Weekly salaries of the employees at a local video store are shown in the table below.

Weekly Salaries at Video Store

| Weekly Salaries | Number of Employees at this Salary |
|-----------------|------------------------------------|
| \$1,000         | 1                                  |
| \$ 500          | 2 <i>use twice</i>                 |
| \$ 350          | 4 <i>use 4 times</i>               |
| \$ 120          | 8                                  |
| \$ 80           | 6                                  |

$\frac{4840}{21} = 230.5$

What is the mean weekly salary at this video store? *sum: 21*

- A. \$230.48**    B. \$242.00    C. \$322.67    D. \$350.00

5. A video game company reports the sales of video games for the first 11 months.

| Month | Sales (In millions) |
|-------|---------------------|
| 1     | 4.5                 |
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| 7     | 5.6                 |
| 8     | 5.3                 |
| 9     | 4.8                 |
| 10    | 5.2                 |
| 11    | 4.8                 |

Sum: 59.6

The company's goal is to sell an average of 5 million games per month. What is the minimum number of video games the company must sell in the 12th month to meet its goal?

- A. 4.8      B. 5.0      C. 5.2      **D. 5.4**

6. SA (2 points) The following table contains math contest scores of two teams in a high school math contest.

| Team A | Team B |
|--------|--------|
| 90     | 87     |
| 85     | 100    |
| 87     | 87     |
| 83     | 78     |
| 80     | 78     |

A      Mean 85      Median 80 83 **85** 87 90  
 B      Mean 86      Median 78 78 **87** 87 100

In your Answer Document, calculate the mean and median for each team. Determine which team scored better in the contest by comparing these measures.

**B**

7. [ER] The average salary for all department store workers in a certain area is \$255 a week. The weekly salaries of the 7 employees in the Acme Department Store are given in the table below.

**Acme Employees' Salaries**

| Employee Number | Salary |
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| Employee 7      | \$420  |

In your Answer Document, determine the measures of center (mean, median and mode) of the 7 salaries. Specify which of these measures of center the management could use to represent the salaries in an argument against pay increases. Explain your answer. Specify which of these measures of center the labor union could use to represent the salaries in an argument for pay increases. Explain your answer.

Mean = 273      Median = 250      Mode: 245  
 Management      Union

~~250~~  $\frac{720}{10} = 72$   $\frac{708}{90} = 78.7$

8. Consider the following scores: 12, 56, 62, 66, 74, 83, 88, 90, 93, 96

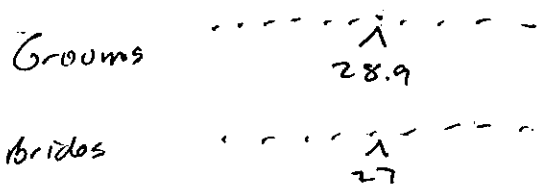
If the outlier, 12, is removed from the set above, what is the approximate increase in the mean of the remaining scores?

- A. 3
- B. 7
- C. 12
- D. 84

9. In 1993, the median age of brides in Ohio was 27.0 years and the median age of grooms was 28.9 years.

Based on this information, which of the following statements must be true?

- A. Most brides were 27 years old. *-no*
- B. The youngest groom was 28.9 years old. *-no*
- C. Half of the grooms were 28.9 years old or older.
- D. All the grooms were older than the brides were. *-no*



10. A set of data contains 10 negative numbers and 4 positive numbers. Which one of these statements must be true?

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