For a given set of numbers, it may be desirable to have a single number to serve as a “representative value” around which all the numbers in a set tend to cluster, kind of like a “middle” number. This number is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Three of these measures in this section are: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**I.** **Mean and Weighted Mean**

1. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_ or what is properly called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,

of a set of data is found by adding up all the items and then dividing by the total number of items. Mean is also known as the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Mean of a Sample: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Mean of a Population: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Mean of a set of items: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**EXAMPLE:** A small recycling business had the following daily sales over a six week period. What is the mean daily sales for that period? (average daily sales)

$305, $285, $240, $376, $198, $264

1. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a set of data is found by first, multiplying the numbers by a weighted factor or frequency, then adding up all the weighted items and dividing by the total.

**EXAMPLE:** What is the grade-point average for this student?

Step 1: multiply the grade and the number of credits (credit hours)

Step 2: Add the products to get a total for the weighted grades

Step 3: Divide by the total credits (credit hours)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course** | **Grade** | **Grade Points *x*** | **Credit *f*** | **Points 🞄 Credit** |
| Math | A |  | 3 |  |
| History | C |  | 3 |  |
| Chemistry | B |  | 4 |  |
| Art | B |  | 2 |  |
| PE | A |  | 1 |  |
| Totals**:** | | | | |

Grade-point average:

**EXAMPLE:** Find the mean salary for a company that pays the following annual salaries listed in the frequency distribution chart below.

|  |  |  |
| --- | --- | --- |
| **Salary**  ***x*** | **Number of**  **Employees *f*** | **Salary 🞄 Number**  ***x 🞄 f*** |
| $22,000 | 8 |  |
| $26,000 | 11 |  |
| $28,500 | 14 |  |
| $31,000 | 9 |  |
| $44,000 | 2 |  |
| $52,000 | 1 |  |
| Totals**:** | | |

Mean Salary =

**II. Median**

Another measure of central tendency which is not so sensitive to extreme values is the

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. This measure divides a group of numbers into two parts, half the numbers below it and half the numbers above it. It’s simply the middle number.

To find the median of a group of items:

Step 1: Rank the items in order (numerical order)

Step 2: If the total number of items is odd, then the median is the middle item in the list

Step 3: If the total number of items is even, then the median is the mean/average of the

two middle items

**EXAMPLE:** Find the median for each list of numbers.

1. 24, 23, 18, 13, 12, 7, 6
2. 17, 15, 9, 13, 21, 32, 41, 7, 12
3. 147, 159, 132, 181, 174, 253

**III. Mode**

The \_\_\_\_\_\_\_\_\_\_\_\_\_ is the measure of central tendency that occurs \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Sometimes a set of data can have two modes, which means they have the same number of frequency. Having two modes is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The data does not need to be in any specific order.

**EXAMPLE:** Find the mode for each set of data.

1. 482, 485, 483, 485, 487, 487, 489
2. 51, 32, 49, 49, 74, 81, 92, 49

