



"Checking In" is a mathematical look at the checkpoints along the Iditarod trail. In this leg of your journey you will examine the distances between checkpoints and you will learn the difference between mean, median, and mode.

First, let's look at the definitions of the terms we need to know.

Range

The difference between the highest and the lowest numbers in a set of numbers.

Addend

One of the numbers to be added.

Mean

The mean is the average of a set of numbers. To find this, add the numbers and then divide by the number of addends. For example, let's say we want to find the average (mean) for the numbers 2, 12, 8, 3, and 5. There are five different numbers (called addends). If we add them together we get 30. If we then divide 30 by the amount of addends (5) we get 6. The average for the set of numbers is 6.

Median

The median is the middle number in the set of numbers when the numbers are arranged in order from least to greatest. Let's say we want to find the median of the same set of numbers from the previous example; 2, 12, 8, 3 and 5. First we must order them from least to greatest. Reordered, the numbers of the set are 2, 3, 5, 8 and 12. Then we need to find the middle number. In this case the middle number is 5. So we can say the median is 5. If there are two middle numbers in the set then the median is the mean of the two middle numbers. For example if the set of numbers is 2, 6, 8, 10, 12, and 14 then the mode would be 9 because 9 is the mean of the two middle numbers 8 and 10.

Mode

The mode is the number that occurs most often in a set of numbers. It is sometimes easier to find if we order the numbers from least to greatest. Then we determine which number occurs most often. In the previous example there is no mode because each number occurs once and only once. However, in this set of numbers we do have a number occurring more than once; 2, 4, 12, 8, 3, and 4. In order the set is 2, 3, 4, 4, 8, and 12. Each number occurs once with the exception of the number 4 which occurs twice. So the mode of this set is 4. Find the mean, median and mode for the following sets of numbers:

24, 13, 6, 4, 2, 4, 1

mean=

median=

mode=

Now try this set:

38, 43, 52, 70, 62

mean=

median=

mode=

For the first example, you should have found the following answers:

mean= 7.7 because the total of the numbers (54) divided by the total number of addends (7) =7.7 .

median= 4 because the middle point of the ordered numbers (1, 2, 4, 4, 6, 13, 24) is 4.

mode= 4 because 4 is the number occurring most often.

For the second set you should have found the following answers:

mean= 53 because the total of the numbers (265) divided by the total number of addends (5)=53.

median= 52 because the middle point of the ordered numbers (38, 43, 52, 62, 70) is 52.

mode= there is no mode because all numbers occur once and only once.

The Assignment



Now it is time to ride the trail. I am going to send you out on the trail to find the mean, median, mode, and range of the [distances between checkpoints](#) on the Iditarod Trail. (Scroll down the page to find the chart.)

If you need to be concerned with the amount of time you are spending on the Internet, print out the checkpoint page and then do your work offline. Are you ready?

Click [here](#), to go to the Iditarod checkpoints page. Individual trail maps are also available to give you a better visual understanding of the Iditarod experience. You will note that there is no map segment from Eagle River to Wasilla. Travel to Wasilla follows the ceremonial start, and is always driven by vehicle. The official starting point for the Iditarod will be either Wasilla, or Willow, depending upon trail conditions at race time. For this exercise, use Wasilla as listed on the current checkpoint index page.

Something to think about: When would we look for the median instead of the mean?

This lesson plan was prepared by New York Middle School teacher Terry Burton for Cabela's Website.