

13.3: Ranking Data

The last few sections in this chapter require one to rank a data set. To rank a data set, you first must arrange the data from smallest to largest. The smallest value gets a rank of 1, the next smallest gets a rank of 2, etc. If there are any values that tie, then each of the tied values gets the average of the corresponding ranks.

Rank the following random sample: 8, -4, 1, -3, 5, 2, -3, 0, 5, 3, 5.

Solution

First, sort the data from smallest to largest: -4, -3, -3, 0, 1, 2, 3, 5, 5, 5, 8

Next, rank the data. The -4 gets a rank of 1. There is a tie between the next two values of -3. They would have received the ranks of 2 and 3, but we do not want one of the values to be ranked higher than the other so we give both -3's a rank of $\frac{2+3}{2} = 2.5$. Then the next value of 0 gets a rank of 4 (we already used the 2nd and 3rd positions). The next set of ties for the three 5's occurs for the rank of 8th, 9th and 10th place. The average of these ranks is $\frac{8+9+10}{3} = 9$. The following is a table of the sorted data with the corresponding ranks.

Data -4 -3 -3 0 1 2 3 5 5 5 8 Rank 1 2.5 2.5 4 5 6 7 9 9 9 11

If there is no tie for the last data point, then your last rank will be the same as your sample size.

What is the rank for the number 15 in the following sample: 10, 25, 15, 8, 20, 15, 10, 9, 8, 22

Solution

Order the data from smallest to largest: 8, 8, 9, 10, 10, 15, 15, 20, 22, 25. Next, rank the data. The two 8's tie for first and second place, so each gets a rank of $\frac{1+2}{2} = 1.5$. The 9 is in the third spot so it gets a rank of 3. The two 10's tie for fourth and fifth place so each gets a rank of $\frac{4+5}{2} = 4.5$. The two 15's tie for sixth and seventh place so each gets a rank of $\frac{6+7}{2} = 6.5$. The next three numbers get the ranks of 8, 9 and 10.

The answer, then, is 6.5, the rank of the number 15.

The Tevis Cup Ride is a 24-hour, 100-mile horse race over the Sierra Nevada mountains from Lake Tahoe to Auburn in a single day. The top 10 completion times for 2019 are shown below. Rank the completion times.

Name Completion Time
Sanoma Blakeley 09:27 PM
Jeremy Reynolds 09:27 PM
Haley Moquin 09:36 PM
Richard George 09:37 PM
Suzanne Huff 09:54 PM
Karen Donley 09:54 PM
Nicki Meuten 10:06 PM
Gwen Hall 10:20 PM
Lindsay Fisher 10:28 PM
Suzanne Hayes 10:29 PM

Solution

The data are already ordered. There are two ties at 9:27 and 9:54.

Time	9:27	9:27	9:36	9:37	9:54	9:54	10:06	10:20	10:28	10:29
Rank	1.5	1.5	3	4	5.5	5.5	7	8	9	10

This page titled [13.3: Ranking Data](#) is shared under a [CC BY-SA 4.0](#) license and was authored, remixed, and/or curated by [Rachel Webb](#) via [source content](#) that was edited to the style and standards of the LibreTexts platform.