

Dear Family,

Your child is learning about using measures of center and variability to compare data.



You can compare two data sets by using measures of center and variability. Measures of center describe the middle of a set of data. One measure of center may better represent a data set than another.

- *Mean* is the average of the numbers in the data. *Median* is the middle number in the data. *Mode* is the most common number in the data.

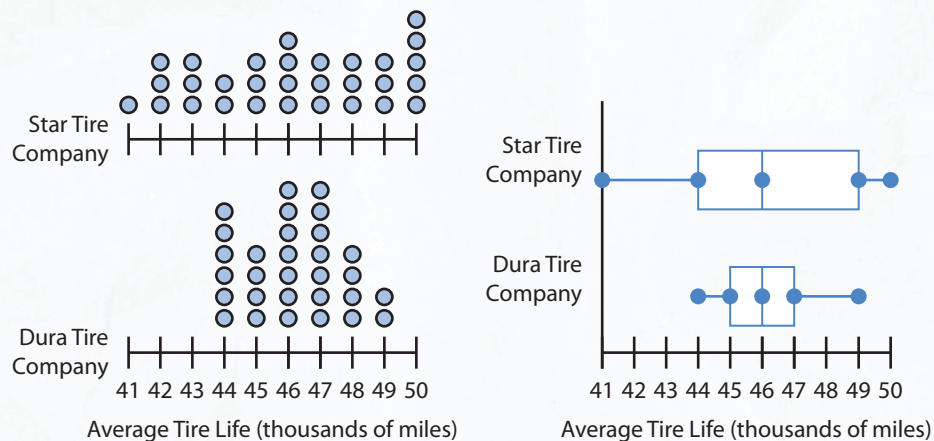
Measures of variability describe how the data varies.

- *Range* is the difference between the greatest and least numbers in the data set. *Mean absolute deviation* is the average distance that the data values are away from the mean. *Interquartile range* describes the middle 50% of the data.

Dot plots and box plots help you visualize data sets to better compare them.

Consider this situation:

A consumer agency tests tires so that shoppers can compare brands. The graphs show the results of the testing. Use the statistical graphs to compare the results.

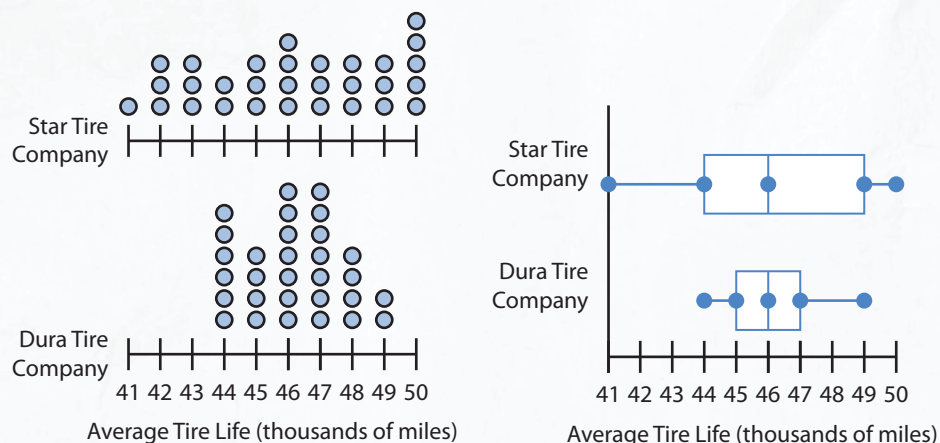


The next page shows how your child might use measures of center and variability to compare the data sets.



Using Measures of Center and Variability to Compare Data: Sample Solution

Use the statistical graphs to compare the data sets.



Comparing measures of center:

Dot plot: The median of both data sets is 46. The mode of Star Tire is 50, and the modes of Dura Tire are 46 and 47. The means are both 46.2.

Box plot: You can only tell the median from a box plot. The median of both sets is 46.

The means and medians of both data sets are the same, so the centers of data are the same. The modes are not a good measure here because the mode for Star Tire is not representative of a typical value.

Comparing measures of variability:

Dot plot: The shape of both data sets is similar, but the values for Star Tire are more spread out. The range is 9 for Star Tire and 5 for Dura Tire. The MAD for Star Tire will be greater because the data are farther away from the mean than the data for Dura Tire.

Box plot: The range is 9 for Star Tire and 5 for Dura Tire. The IQR is 5 for Star Tire and 2 for Dura Tire.

Both plots tell you that the data for Star Tire is more spread out, and therefore has more variability, than the data for Dura Tire.

Answer: The measures of center for the data sets are very close, except for the mode. Dura Tires data has less variability so their tires are likely to be a more consistent product.