

# Frequency Distribution Using Grouped Quantitative Data

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Ideally, the number of classes in a frequency distribution should be between 4 and 20

- Some data sets, particularly those with continuous data, require several values to be grouped together in a single class
- This grouping prevents having too many classes in the frequency distribution, which can make it difficult to detect patterns

# Class Width

There are methods to determine the number of classes  $k$  in a frequency distribution. But they are just a recommendation. You can always adjust!

Once  $k$  is known, the width of each class can be found as:

$$\text{Estimated class width} = \frac{\text{Maximum data value} - \text{Minimum data value}}{k}$$

- The width is the range of numbers to put into each class
- Round this estimate to a useful whole number that makes the frequency distribution more readable

# Class Width

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- There is no one correct answer for the class width
- The goal is to create a histogram to clearly and usefully show the pattern in the data
- Often there is more than one acceptable way to accomplish this

# Class Boundaries

**Class boundaries** represent the minimum and maximum values for each class

Choose class boundaries that are easy to read:



3.21 to less than 6.21 minutes  
6.21 to less than 9.21 minutes

vs.



3 to less than 6 minutes  
6 to less than 9 minutes