

# Lesson Two: Trimmed Means

## Example 1

Recall Mr. Jimenez and his 19 factory employees from the last section (question #2 in Practice Assignment 1). Their hourly wages were (in dollars):

~~11~~ 11 11 11 11 11 11 11 11 11  
 11 11 11 12 12 12 13 13 14 ~~550~~

Mr. Jimenez is the person making \$550 an hour. Including his extremely different wage *skews* (throws off) the results. We consider his wage an *outlier*.

*outlier: data that is substantially different from the rest of data.*

**Definition**

An *outlier* is a data value that is much larger or smaller than the rest of the data in the set.

When outliers occur, a *trimmed mean* is sometimes used to remove the outliers and provide a more realistic mean. The mean of this data as it stands now is **\$38.45**.

## Example 1

a) Determine the trimmed mean of the data above, if you trim the top score and the bottom score. (Please note that "top" means highest or largest number, and "bottom" means lowest or smallest number).

- ① Put the numbers in order from lowest to highest
- ② Remove one lowest number and one highest number.  
 So, remove \$11.00 and \$550

③ Find the mean of the remaining numbers.

$$\frac{11+11+11+11+11+11+11+11+11+11+11+11+11+12+12+12+13+13+14}{18} = \frac{208}{18} = \boxed{\$11.56}$$

b) Do you think the trimmed mean is a better approximation of the 'average' hourly wage at this factory? Justify your answer.

*The trimmed mean is closer to the actual wages. By removing the outliers, the mean is \$11.56 which is more realistic than \$38.45.*