

Stats /

How changing a value affects the mean and median

Problem Explanation

How changing a value affects the mean and median

QUESTION

The weekly salaries (in dollars) for 9 employees of a small business are given below. (Note that these are already ordered from least to greatest.)

305, 665, 691, 740, 748, 836, 869, 874, 896

Suppose that the \$305 salary changes to \$629. Answer the following.

(a) What happens to the median?	☐ It decreases by \$ ☐ It increases by \$ ☒ It stays the same.
(b) What happens to the mean?	☐ It decreases by \$ ☒ It increases by \$ 36 ☐ It stays the same.

Original Mean

$$\begin{array}{r}
 305 \\
 665 \\
 691 \\
 740 \\
 748 \\
 836 \\
 869 \\
 874 \\
 + 896 \\
 \hline
 6,629
 \end{array}$$

$$\frac{6,629}{9} = 736$$

increase

$$\begin{array}{r}
 6,629 \\
 - 305 \\
 + 629 \\
 \hline
 6,948
 \end{array}$$

$$\frac{6,948}{9} = 772$$

$$\begin{array}{r}
 772 \\
 - 736 \\
 \hline
 36
 \end{array}$$