

Rich live problems

Unequal problems

To start of with, what is a mean, median, mode and a range?

A mean is the average value of a list of numbers.

A median is the value in the middle when all numbers in a list are in order. If there are two medians, find the mean of those two.

A mode is the value that happens the most often or is the most frequent in a list.

A range is the value of the difference between the greatest number and the lowest number in a list.

A. Mode < Median < Mean

This expression shows that the median which is the 3rd number on the list, is greater than the mode. This means that the modes are the 1st and 2nd number. Next, we know that the mean is greater than the median so we know that the 4th and 5th number needs to be large in terms of value. An example that fits as an expression is 1,1,2,4,9 because the mode is 1 which is less than the median, 2. The mean is 17 divided 5. The dividend is 3.4. This is the mean and is greater than the median, 2.

B. Mode < Mean < Median

This expression shows that the 4th and 5th number should be not big because the median needs to be greater than the mean. The modes should be the 1st and 2nd number because the median needs to be greater than the mode. From this, an example can be 2,2,7,8,9. The mode is 2, which is less than the mean. The mean is $(2+2+7+8+9)$ divided by 5 which is 27 divided by 5. That equals 5.4. 5.4 is less than 7, the median.

C. Mean < Mode < Median

The median is the number in the middle, 3rd number. It says that the modes are less than the median. This tells us that the mode needs to be the 1st and 2nd number. However, the expression shows that the mean is less than the mode, which is impossible because the mode needs to be the 1st and 2nd number according to the last part of the equation.

D. Mean < Median < Mode

The mode is greater than the median so the modes needs to be the 4th and 5th number. The 1st and 2nd number needs to stay low because the mean needs to be less than the median. This gives an example such as, 1,2,3,4,4. The median is 3 and the modes are greater than the median. The modes are 4. $(1+2+3+4+4)$ divided by 5 which is equivalent to 14 divided by 5 is equal to 2.8. This shows the mean and we know that this is less than the mode.

E. Median < Mode < Mean

This is impossible because if the mode is greater than the median, the mode needs to be the 4th number or the 5th number. However, the mean can't get above that because the 4th and 5th number is both in the top 2 largest number.

F. Median < Mean < Mode

This expression shows that the mode needs to be the 4th and 5th number since it says that the mode is greater than the median. We know that those numbers also needs to be large because it says in the expression that the mean needs to be greater than the median. An example can be 1,1,3,9,9. The mode is 9, which is greater than the median, 3. Also, it's greater than the mean. $(1+1+3+9+9)$ divided by 5 is equivalent to 23 divided by 5 which is 4.6. 4.6 is the mean and we know that it is less than 9.