

Nrich- answers to mode, median and mean questions.

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Question 1

One of the answers to the question can you find 5 sets of positive numbers that make the mode < median < mean is

2,2,5,10,11- We got this answer because we thought that the first 2 numbers had to be identical and small because that would give us a small number as the mode. We then chose the median as 5 and then we thought that the mean had to be more than 5, so we chose 6! Next we did 6×5 which equals 30 so then we realised that all of the numbers added together must equal 30. $2+2+5 = 9$ and $30-9 = 21$ and then we picked 2 numbers which were different that equalled 21.

This makes the

Mode 2
Median 5
Mean 6

This question can also be completed only using 4 numbers. If you use the numbers

1,1,3,35

then the

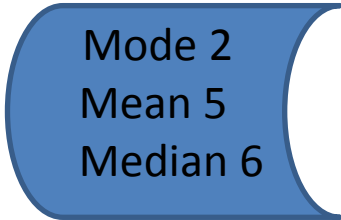
MODE = 1
MEDIAN = 2
MEAN = 10

Question 2

One of the answers to the question can you find 5 sets of positive numbers that make the mode < mean < median is

2,2,6,7,8- We got this answer by first of all picking the first 2 numbers identical and small- the same as last question. We then picked the median as a reasonably big number, so we picked 6. After that we picked two numbers that were bigger than the median, but only just otherwise the mean would become bigger than the median.

This makes the



Mode 2
Mean 5
Median 6

Question 3

For this question we couldn't find an answer to the question One of the answers to the question can you find 5 sets of positive numbers that make the mean $<$ mode $<$ median only using 5 numbers.

We couldn't find an answer because the median (The 3rd number) has to be bigger than the mode which has to be the first 2 numbers. After that you have to put 2 numbers bigger than the median into the sequence which will automatically make the mean bigger than the mode.

Question 4

One of the answers to the question can you find 5 sets of positive numbers that make the mean < median < mode is

3,4,7,8,8- We got this answer by making the 4th and 5th numbers identical and slightly bigger than the median number which we chose as 7. This ensured that the mode would be bigger than the median as long as the first 2 numbers were different to any other in the sequence. We tried to make the mean 6 which would make the numbers total to 30. The 3 numbers we already had equalled 23 so we realised that the remaining 2 numbers must = 7, we chose these numbers as 4 and 3.

This makes the

Mean 6
Median 7
Mode 8

This question can also be completed using only 4 numbers. If you use the numbers

2,4,6,6

then the

MEAN = 4.5
MEDIAN = 5
MODE = 6

Question 5

One of the answers to the question can you find 5 sets of positive numbers that make the median $<$ mode $<$ mean.

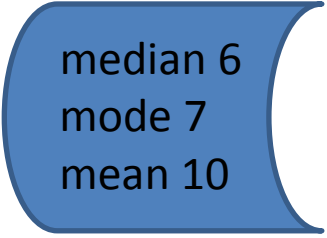
We think we couldn't find the answer because the 3rd number in the sequence has to be smaller than the mean and the mode. This means that the 2 numbers after the median have to be big and the same, because these 2 numbers are the biggest this means that it is impossible for the mean to be higher than the mode.

Question 6

One of the answers to the question can you find 5 sets of positive numbers that make the median < mean < mode is

4,5,6,10,10- We got this answer by first of all selecting a biggish number which we would have as the mode, we chose 10. After this we had to make sure the mean was bigger than the median so we worked out if the mean was to be 7, the 3 numbers would have to add up to 15 but the biggest of the numbers could only be up to 6. Then we found that $6+5+4=15$ so we used them numbers.

This made the



median 6
mode 7
mean 10

Let's do the same using 6 numbers

Mode < Median < Mean

3,3,6,8,12,16

Mode= 3

Median= 7

Mean= 8

Median < Mode < Mean

3,4,5,7,7,34

Median= 6

Mode=7

Mean=10

Median < Mean < Mode

4,5,6,7,10,10

Median= 6.5

Mean= 7

Mode= 10

Mode < Mean < Median

1,1,10,12,14,16

Mode= 1

Mean= 9

Median= 11

Mean < Mode < Median

1,100,100,101,102,103

Mean= 84.5

Mode= 100

Median= 100.5

Mean < Median < Mode

3,4,5,6,6,6

Mean= 5

Median= 5.5

Mode= 6