Odd

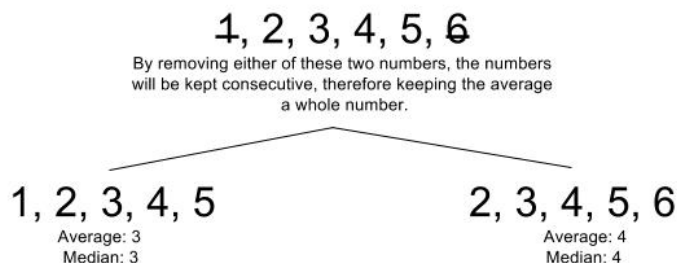| N	Cancelled Number
3	2
5	3
7	4
9	5
11	6

Rule: $\dfrac{N+1}{2}$

Explanation: If *N* is an odd number, the median in a sequence is always a whole number. In this scenario, the median is always the number that has to be cancelled. The median can be found using the rule as shown above or $N/2+1/2$.

Example: If *N = 5,* then the sequence is 1, 2, 3, 4, 5. By removing $(5+1)/2 = 3$, the mean will still be $(1+2+4+5)/4 = 3$ which is a whole number.

Even

Answer: If there is a set of consecutive numbers 1 to N, with N being an Even number, If you were to remove 1 number to keep the average a whole number, the numbers you could remove are 1 or N

Explanation: If there is an even set of consecutive numbers, you need to remove a number that will keep the set consecutive. This will cause the set to have an odd amount of numbers, which if you look at our explanation for if N is odd, you can see that the average of an odd amount of consecutive number is also its median. If you were to remove one of its middle numbers, it would cause the the average to drop just slightly, which would cause the average to be a decimal.

1, 2, 3, 4, 5, 6

By removing either of these two numbers, the numbers will be kept consecutive, therefore keeping the average a whole number.

1, 2, 3, 4, 5
Average: 3
Median: 3

2, 3, 4, 5, 6
Average: 4
Median: 4

By: Year 8 Enrichment Class Students @ Renaissance College