

n	Locating Lower Quartile, Median and Upper Quartile	Read value at position		
6		These points should strictly be termed "hinges" see commentary below		
7		2 nd	3 rd 4 th	5 th
8		2 nd	4 th	6 th
9		2 nd 3 rd	4 th 5 th	6 th 7 th
10		2 nd 3 rd	5 th	7 th 8 th
11		3 rd	5 th 6 th	8 th
12		3 rd	6 th	9 th
13		3 rd 4 th	6 th 7 th	9 th 10 th
14		3 rd 4 th	7 th	10 th 11 th
15		4 th	7 th 8 th	11 th
etc.		4 th	8 th	12 th
rg		$\frac{1}{4}(n+1)$	$\frac{1}{2}(n+1)$	$\frac{3}{4}(n+1)$
∞	all values to nearest half value - but for quarter values		round up	round down

To find the location of the quartiles ,use the formula given but then round **up** quarter values for the lower quartile and round **down** quarter values for the upper quartile, all results to the nearest half. This gives a completely consistent calculation as the quartiles should obviously be equidistant from the median. This method is by Moore and McCabe and differs from Tukey's method by excluding the median point in odd data sets. John Tukey, who invented the box and whisker plot, recognised the confusion in the term **quartile** referring both to the data set itself and the actual boundary values. He termed the latter "hinge" but few including IB follow his example and interchange the terms freely.

The point at issue is that the "mean" often commits the error of producing a meaningless (!) value (eg 2.3 children) and it would seem sensible to avoid that error with the median LQ and UQ. However even using "hinge" still leaves open the question as to how the median might be defined for an even data set with different values at the boundary. For example do you have a value not in the data set, round up or round down depending on the skew?

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