Class Practice on Percentiles and Quartiles #1

Percentiles

The kth percentile, denoted $P_k$, of a data set is a number such that at most $k\%$ of the data are smaller than $P_k$. Another way of saying this is that the percent of data that are smaller than $P_k$ must be less than or equal to $k\%$.

To find $P_k$ in a data set of size n:

1. Rank the n pieces of data (ascending order recommended)

2. Calculate the value of $\frac{nk}{100}$

3. If $\frac{nk}{100}$ is an integer, A, rewrite it as A.5 and

   $P_k$ will be at the A.5$^{th}$ position in the data set.

4. If $\frac{nk}{100}$ is not an integer, round it up to the next highest integer, B.

   $P_k$ will be at the B$^{th}$ position in the data set.

Quartiles

There are three quartiles denoted as $Q_1$, $Q_2$, and $Q_3$.

By definition, $Q_1 = P_{25}$

$Q_2 = P_{50}$

$Q_3 = P_{75}$