

## Quiz 2

1. For equal-frequency class intervals, observations are assigned to a class interval of a variable. These intervals are defined by dividing the frequency of observations evenly among the range (based on quantile, etc.). For equal-size class intervals, all interval ranges are equal in width and represent the variable's range divided by the number of classes.
2. The `st_transform()` function makes a map transformation for simple feature (sf) data.
3. Geospatial analysis in R is more easily reproducible in R than in ArcMap or similar programs. It is easier for chunks of code to be run than for multiple operations to be run in a GIS program, making it easier for analysis to be reproduced by other individuals or run for different datasets.
4. It is best to do Data Wrangling in R as opposed to something like Excel because it allows for chunks of code to be rerun on multiple datasets with ease.
5. An empirical reference distribution is a cumulative frequency curve for an actual dataset and can be used to base judgements on the significance of individual values or statistics.
6. The Central Limit Theorem is important in practice because it guarantees that statistics obtained by integrating will be normally distributed.
7. A p-value is the significance level or probability that a value of the test statistic would occur by chance if the null hypothesis is true. A small p-value ( $<0.5$ ) means that the null hypothesis is rejected and indicated that a "significant difference" has been observed.
8. The t-statistic is the test statistic for the t-test, which tests if there is a significant difference between two groups of observations as measured by the differences in their means. For a two-sample t-statistic, the numerator is the difference of the means of the first two samples, and the denominator is the variability of the difference of the two sample means. This ratio makes sense as a way of describing the difference between two mean values because it takes into account the actual difference in sampled means and the variability in sample populations.