DEALING WITH OUTLIERS

Name_____

An **outlier** is a piece of data that is significantly far away from the other data values. A data point that is 1.5 x (IQR) units above Q3 or 1.5 x (IQR) units below Q1 is considered an outlier.

Data set (the time it took students to complete a take-home math quiz in minutes):
19, 24, 24, 24, 25, 25, 25, 26, 27, 27, 28, 28, 28, 29, 30, 31, 31, 31, 32, 33, 35, 35, 35, 36, 36, 70

1. Prepare a box & whisker plot (not considering any outliers) for this data. Supply the following information:

min = _____ Q3 = _____

Q1 = _____ max = _____

median = _____ mean = _____

2. Find the interquartile range (IQR). _____

range = _____

3. Show whether the 19 minutes and/or the 70 minutes are outliers for this data set.

a) 19 minutes:

b) 70 minutes:

4. Prepare a new box & whisker plot to display any possible outliers.

5. Remove the outlier(s) from the data set and prepare another box & whisker plot. Supply the following information:

min = _____ Q3 = _____

Q1 = _____ max = _____

median = _____ mean = _____

range = _____

6. a) Which measures remained the same when the outlier was removed?

b) Which measures changed when the outlier was removed?

c) Would these measures that changed be the same for any outliers that are removed from a data set? _____ Explain.