3) In K-Means, Convergence is required because even if we had K=N then every point would have its own cluster, but that is not very useful for analysis. Therefore, for a given K, the E or M step will continue to iterate until the memberships or centers are no longer moving once they've satisfied the objective.

We discussed several reasons in class that make it impossible to get to the global minimum. This happens by getting caught at a local minimum. Getting caught this way could be from starting at bad initial centers.