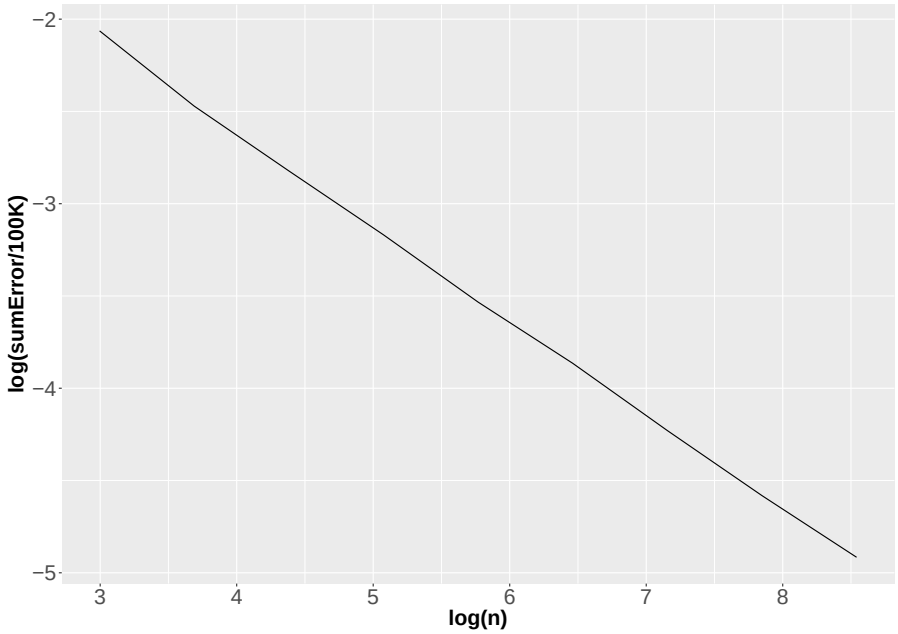
STAT 535 - Exercise 1

Due: Monday, March 5th, 2018



1. Use this plot to empirically derive the running time of Simple Monte Carlo for a given tolerance *tol*. Create the plot for Example 7 [c.f. lecture slides].

2. Construct a RNG for exponential random variables of a given rate.

3. Write pseudo-code to simulate from a mixture distribution with 2 normal components. Show that rejection sampling is an augmentation sampling scheme.

4. Compute the running time in tol and d for Example 7 [c.f. lecture slides] but with non-diagonal covariance normal vectors.

5. Let X be a random tree. We are looking at a clade indicator $f(X)$ as in Example 2. After 500 iid trees your MC estimate for the clade support is roughly 10%. Should you extract more samples?