DATA130004: Homework 2

Due in class on October 10, 2018

1. Rizzo book Excercise 3.3, 3.5, 3.6(continuous case), 3.7, 3.9 and 3.10
2. Suppose X and Y are two normal random variables. If $(X, Y)^\top$ follows a bivariate normal distribution $N(\mu, \Sigma)$, we call X and Y are jointly normally distributed.
   (a) If X and Y are jointly normally distributed. Does *uncorrelated* imply *independent*? If so, prove it; otherwise give a counterexample.
   (b) If X and Y are both normally distributed, but not jointly normally distributed. Does *uncorrelated* imply *independent* now? If so, prove it; otherwise give a counterexample.