

Problem Set 5G
Due: March 16, 2005

G0. Omit Question 1 in Problem Set 5.

G1. A, B are independent random variables. A is uniformly distributed from 0 to 2π and B is exponentially distributed with parameter 1. Define the random variables:

$$\begin{aligned} X &= \sqrt{2B} \cos A \\ Y &= \sqrt{2B} \sin A \end{aligned}$$

Show that X and Y are independent, standard normal random variables.