**STA 504 Homework #9**

**Due: Monday, November 14**

**Problem 1.**

Let and be continuous random variables with pdf:

(a) Compute the expectation of .

(b) What is the expectation of

(c). Find the correlation coefficient of Y1 and Y2

(d). Are Y1 and Y2 independent?

**Problem 2.**

A machine fills potato chip bag. Although each bag should weigh 50 grams each and contain 5 milligrams of salt, in fact, because of differing machines, weight and amount of salt placed in each bag varies. Bivariate density function for this machine is

(a) Compute the variance of and respectively.

(b) What is the expectation of

(c). Find the covariance of Y1 and Y2

(d). Are Y1 and Y2 independent?