Stat 532 **Name:** _____
HW 10
Due 11/13/16

Please prepare your solutions using LaTeX or another word processing software.

1. (50 points) Recall the experiment in class for sampling from the mixture normal distribution. Now use a Metropolis-Hastings sampler with a normally distributed random walk to sample from this distribution. What step size did you choose for this implementation and what was your acceptance rate?

2. Recall the housing dataset from the previous homework. Now let's consider a binary outcome of whether or not a house sells for more than $400,000. To simplify the analysis only consider the zip code, square footage of the house, and the square footage of the lot. A smaller dataset has been provided for this question SeattleBinaryHousing.csv.

   (a) (30 points) Concisely write/describe your model, this should include priors.

   (b) (20 points) Summarize the posterior distribution of the parameters in your model. Include trace plots and marginal posterior distributions for the regression coefficients.