## Problem 1: Due February 8 at 10:00 AM

1. Demand: P(q) = a - bq

2. Cost: C(q) = cq

3.  $b \sim log N(\mu, \sigma)$ 

The firm wishes to maximize it's expected profit. Solve for the optimal quantity analytically. Then write a computer program that returns the numerical optimal quantity given any input vector  $(a, b, c, \mu, \sigma)$ .