1. (10 points) Implement Algorithm P in Section 3.4.1 to generate a normal random variable $X_1$. For $U_1, U_2$, use linear congruential generators with moduli $m_1 = 1073741827$ and $m_2 = 1073741831$ respectively, and your choice of $a_1, a_2, c_1, c_2$ (they should be different and relatively large). Compute the mean and standard deviation of the first 20 values of $X_1$. Repeat this for the first 10000 values of $X_1$.

2. (10 points) Use the first $10^7$ values of $X_1$ to approximate the probability that $X_1 > 1.5$. What do you get and what does the theory predict you should get?