1). You are tossing a die that has probability of 1/6 of coming up 1 on each toss. Tosses are independent. We are interested in how long we must wait to get the first 1.

(a). The probability of a 1 on the first toss is 1/6. What is the probability that the first toss is not a 1 and the second toss is a 1?

(b). What is the probability that the first two tosses are not 1s and the third toss is a 1? This is the probability that the first 1 occurs on the third toss.

(c). What is the probability that the first 1 occurs on the fourth toss? On the fifth toss?

2). The length of human pregnancies from conception to birth varies according to a distribution that is approximately Normal with mean 266 days and standard deviation 16 days. Draw a density curve for this distribution (using excel) on which the mean and standard deviation are correctly located.

3). An iPod has about 10,000 songs. The distribution of the play time for these songs is highly skewed. Assume that the standard deviation for the population is 300 seconds.

(a). What is the standard deviation of the average time when you take an SRS of 10 songs from this population?

(b). How many songs would you need to sample if you wanted the standard deviation of the mean to be 30 seconds?