EE 271 - Hwk on Statistics Due Nov. 8, 2019

1. P_7_7
   Data analysis of the breaking strength of a certain fabric shows that it is normally distributed with a mean of 300 lb and a variance of 9.

   (a) Estimate the percentage of fabric samples that will have a breaking strength no less than 294 lb.

   (b) Estimate the percentage of fabric samples that will have a breaking strength no less than 297 lb and no greater than 303 lb.

2. P_7_13
   Use a random number generator to produce 1000 uniformly distributed numbers with mean 10, a minimum of 2, and a maximum of 18.Obtain the mean and the histogram of these numbers, and discuss whether they appear uniformly distributed with the desired mean and variance.

3. P_7_27
   The following data are the measured temperature T of water flowing from a hot water faucet after it is turned on at time t = 0.

t (sec)	$T(°F)$	t (sec)	$T(°F)$
0	72.5	6	109.3
1	78.1	7	110.2
2	86.4	8	110.5
3	92.3	9	109.9
4	110.6	10	110.2
5	111.5		

   (a) Plot the data, connecting them first with straight lines and then with a cubic spline.

   (b) estimate the temperature values at the following times, using linear interpolation and then cubic spline interpolation: $t = 0.6, 2.5, 4.7, 8.9$

   (c) Use both the linear and cubic spline interpolations to estimate the time it will take for the temperature to equal the following values: $T = 75, 85, 90, 105$