16.901: Homework # 12
Due Date: April 25, 2pm

In this homework, you will implement a Monte Carlo method for the 1-D blade heat transfer problem being discussed in class in which the thickness of the thermal barrier coating (TBC) is assumed to have a triangular distribution. Three sample codes are distributed with this homework:

- **bladeLtbc_tri.m**: The main script which should only need to be modified to change the most-probable value of the TBC thickness.
- **blade1D.m**: The analysis function which solves the 1-D heat transfer problem and is called by **bladeLtbc_tri.m**. You do not need to modify this script.
- **trirnd.m**: The function you are to write to generate a random number from a triangular distribution.

1. Implement the function **trirnd.m** to generate a random number from a triangular distribution in which $x_{\min}$ is the minimum value of x, x_{mpp} is the most-probable value of x, and $x_{\max}$ is the maximum value of x. Turn in a hard copy of your completed routine.

2. Assume that $L_{TBC\min} = 0.00025m$ and $L_{TBC\max} = 0.00075m$. Run three different triangular distributions, specifically, with $L_{TBCmpp} = 0.0003m$, $0.0005m$, and $0.0007m$. What are the mean values and standard deviations of T_{mh} for the three results using a 1000 sample Monte Carlo? Also, include hard copies of the distributions of T_{mh} for the three cases.