MATH 2720 Introduction to Programming with MATLAB
Homework 1 (Due 9/9 Thur., 9:29 AM)

Create script files for each problem,

`hw1_p1_yourlastname.m`,
`hw1_p2_yourlastname.m`,
`hw1_p3_yourlastname.m`,
`hw1_p4_yourlastname.m`

containing commands to carry out the following calculations. Please email your files (attached) to me at `minhyung_cho@uml.edu`

1. The prices of an oak tree and a pine tree are $54.95 and $39.95, respectively. Find the total cost of 16 oak trees and 20 pine trees, rounded of to the nearest dollar.

2. The combined resistance R_T of three resistors in parallel is given by

$$R_T = \frac{1}{\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}},$$

   where R_1, R_2, and R_3 are the resistance of the three resistors. Assign the values 10, 25, and 40 to R_1, R_2, and R_3 and calculate the value or R_T

3. The monthly payment M on a loan amount P for y years and interest rate r is given by

$$M = \frac{Pr/12}{1 - (1 + r/12)^{-12y}}$$

   Define the variables $P = 85000$, $y = 15$, and $r = 0.05$. Calculate both the monthly payment M and the total amount of money T paid over the life of the loan.

4. The ideal gas laws relates the pressure p, volume V, and the temperature T of an ideal gas:

$$pV = nRT$$

   where n is the number of moles of gas and $R = 8.31$ joule/K·mole is the universal gas constant. Calculate the pressure of 2 moles of an ideal gas at a temperature of 300 K and a volume of 0.1 m^3.