1. (10 points)
   Do P2.1.1 from Textbook.

2. (10 points)
   (a) Assume that L (scalar), R (scalar), and c(1:4) are given. Assume that L < R. Write a MATLAB function that computes \( a(1:4) \) so that if \( p(x) = a_1 + a_2x + a_3x^2 + a_4x^3 \), then \( p(R) = c_1, p'(R) = c_2, p''(R) = c_3, \) and \( p(L) = c_4 \). Use "\"" ("mldivide") to solve any linear system that arises in your method.

   (b) Write a MATLAB function \( a = \text{TwoPtInterp}(R,cR,L,cL) \) that returns the coefficients of the polynomial \( p(x) = a_1 + a_2x + \cdots + a_nx^{n-1} \) that satisfies \( p^{(k-1)}(R) = cR(k) \) for \( k = 1 : \text{length}(cR) \) and \( p^{(k-1)}(L) = cL(k) \) for \( k = 1 : \text{length}(cL) \). The degree of \( p \), i.e., \( n \), should be one less than the total number of end conditions.