1. (10 points)
   a) Do Problem P2.2.1 from textbook. Instead of \( x \) being an \( (n - 1) \)-column vector, you should let \( x \) be an \( n \)-column vector.
   HINT: Use HornerN and InterpV.
   b) Show output of your code for \( c_1 = 1, c_2 = 2, c_3 = 3 \) and \( x_1 = 1, x_2 = 2, x_3 = 3 \).

2. (10 points)
   Let \( f(x) \) be a differentiable function such that \( f'(x) \) and \( f''(x) \) are continuous over the interval \([a, b]\). Also, assume that \( f'(x) \) is increasing in \([a, b]\). Let \( p(x) \) be the degree 1 polynomial that interpolates \( f(x) \) at the two points \( a \) and \( b \), i.e., \( p(a) = f(a) \) and \( p(b) = f(b) \). Prove that \( f(x) < p(x) \) for all \( x \in (a, b) \).