

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 $x \in (a, b)$.