Suppose $f: \mathbb{R}^2 \to \mathbb{R}$ with rule $f(x, y) = x^2 + xy + y^2$.

A. Calculate the gradient of $f$ at $(1, 3)$.

B. Calculate $Hf(1,3)$, the Hessian of $f$ at $(1, 3)$.

C. Give $p_1(x)$, the first Taylor Polynomial of $f$ at $(1, 3)$.

D. Give $p_2(x)$, the second Taylor Polynomial of $f$ at $(1, 3)$. 