Suppose \( f: \mathbb{R}^2 \rightarrow \mathbb{R} \) with rule \( f(x, y) = xy^3 + x^3y + 2x^2 \)

A) Calculate the gradient of \( f \) at \((1, 1)\). (Also denoted \( \nabla f(1,1) \).)

B) Calculate the directional derivative of \( f \) at \((1, 1)\) in the direction parallel to the vector \((1, -1)\).