You are to find the maximum value taken on by the objective function $3xy$ subject to the constraint equation $x + y = 4$.

A. Use implicit differentiation to obtain an expression for the derivative of the objective function, which you will set equal to 0.

B. Use implicit differential on the constraint equation to obtain an expression for $y'$. 

C. Use the results from A and B to compute the maximum value of the objective function, as well as the values of $x$ and $y$ at which the objective function achieves its maximum value.