Let $\mathbf{F}(x, y) = (xy^2, y + x)$. Let $R$ be the region in the first quadrant bounded by the curves $y = x^2$ and $y = x$. Show that Green's Theorem is true in this case by calculating these two integrals:

A. $\iint_R \left( \frac{\partial F_2}{\partial x} - \frac{\partial F_1}{\partial y} \right) dA$

B. $\oint_{\partial R} \mathbf{F} \cdot dx$