

Name _____

Mathematics 206a: Multivariable Calculus
Fall Semester 2005

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Quiz #36

November 30

Let $\mathbf{F}(x, y) = (xy^2, y + x)$. Let R be the triangular region in the first quadrant bounded by the curves $y = 0$, $x = 1$, and $y = x$. Show that Green's Theorem is true in this setting by calculating these two integrals: [Note that for B the boundary of the triangle must be parametrized in three pieces, oriented correctly!]

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

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