Name:

1. Use Green's Theorem to evaluate the integral $\int_C \mathbf{F} \cdot d\mathbf{r}$, where $\mathbf{F}(x, y) = \langle y^2 \cos x, x^2 + 2y \sin x \rangle$ and C is the trianglular path from $(0, 0)$ to $(2, 6)$ to $(2, 0)$, and back to $(0, 0)$.

2. Find the normal vector $\mathbf{N}(u, v) = \mathbf{r}_u(u, v) \times \mathbf{r}_v(u, v)$ for the parametric surface given by $x = 3u$, $y = u^2 + v^2$, $z = v^3$, at the point $(0, 1, 1)$.