Quiz 6, Calculus III
Fall 2012

Name: _____

Evaluate the following line integrals. You can use any method you choose (direct, fundamental theorem of line integrals, Green's theorem, etc) as long as that method is applicable.

1. (3 points) $\displaystyle\int_C 2xyz\,dx + x^2z\,dy + x^2y\,dz$ where C is the straight line from (0,0,0) to (1,3,2).

2. (4 points) $\int_C \mathbf{F} \cdot d\mathbf{r}$ where $\mathbf{F}(x, y) = xy\mathbf{i} + 2xy\mathbf{j}$ and C is given by $\mathbf{r}(t) = t^2\mathbf{i} + t^2\mathbf{j}$, $0 \leq t \leq 2$.

3. (3 points) $\int_C 2xy\, dx + (x^2 + y^2)\, dy$ where C is the boundary of the square with vertices (0,0), (2,0), (2,2), and (0,2).