MATH 261 Quiz 11 Name:
Student number:

Show all work. 5 points each.

1. Find a potential function f so that $\mathbf{F} = \langle xy^2, x^2y \rangle = \nabla f$ and use it to evaluate $\int_C \mathbf{F} \cdot d\mathbf{r}$ where C: $\mathbf{r}(t) = \langle t + \sin(\frac{\pi t}{2}), t + \cos(\frac{\pi t}{2}) \rangle$, $0 \leq t \leq 1$.

2. Use Greens theorem to evaluate $\oint_C xy\,dx + x^2y^3\,dy$ where C is the traingle with vertices $(0,0)$, $(1,0)$ and $(1,2)$