Math 241 X8 **Name:**

Quiz # 4

October 10, 2013 No electronic devices or interpersonal communication allowed. Show work to get credit.

1) Compute directly the net flow of $\vec{F}(x, y) = \langle 2e^{4x^2}, e^{y^2} \rangle$ along the line segment going from $(2, -4)$ to $(-1, 2)$.

2) Find the flow of $\vec{F}$ along the curve $y = 2 + 6\cos(\pi x/2)$, running x from -1 to 2.

3) Find a potential function for $\vec{G}(x, y) = \langle 2x^3 e^y + \sin x, \frac{1}{2}x^4 e^y + y^2 + 1 \rangle$.

4) Find the net flow of $\vec{G}$ along the circle $x^2 + y^2 = 5$.