

MATH 261 EXAM 4, Fall 2007

Simplify all answers. Show your work!		Name:	Score	
1.	a) Let $f(x, y) = \tan^{-1}(y/x)$. Compute ∇f .	b) Find a normal to $x^3 + y^3 = 2$ at $(1, 1)$.	1	
			2	
			3	
			4	
			5	
			6	
Ans:_____.		Ans:_____.		
2.	Compute $\int_C x ds$, where C is the curve $y = x^2$ from $x = 0$ to $x = 1$.	7		
		8		
		9		
		10		
		Tot		
Ans:_____.		Ans:_____.		
3.	Find a potential function: a) $\mathbf{F} = 2x\mathbf{i} + 3y^2z\mathbf{j} + y^3\mathbf{k}$,	b) $\mathbf{F} = \left(\frac{x}{x^2+y^2}\right)\mathbf{i} + \left(\frac{y}{x^2+y^2}\right)\mathbf{j} + z\mathbf{k}$,		
			Ans:_____.	
4.	Find $\int_C (2x \ln y - yz) dx + \left(\frac{x^2}{y} - xz\right) dy - xy dz$, along the line segment from $(1, 2, 1)$ to $(2, 1, 1)$.			
		Ans:_____.		
5.	Find $\int_C \mathbf{F} \cdot d\mathbf{r}$, where $\mathbf{F} = (\sin x - x^2y)\mathbf{i} + (\cos y + xy^2)\mathbf{j}$, and C is the half moon $x = \sqrt{9 - y^2}$, $x = 0$.			
		Ans:_____.		
Extra Space				

