

MATH 261 EXAM 2, Fall 2004

Simplify all answers. Show your work!		Name:	Score	
1.	Let $f(x, y, z) = \sqrt{x^2 - 3y^2 + 5z^2}$. a) Find $f(1, -1, 1)$. Ans: _____	b) Describe the level surfaces for $k = 0, 1$. $k = 0$: _____ $k = 1$: _____	1	
			2	
			3	
			4	
			5	
			6	
			7	
2.	Let $f(x, y) = \tan^{-1}(y/x)$. Compute: a) f_x . Ans: _____	b) f_y . Ans: _____	8	
			9	
			10	
			Tot	
3.	Show that $\lim_{(x,y) \rightarrow (0,0)} \frac{5x^2y}{3x^4 + y^2}$ does not exist. (Use proper syntax.)			
4.	Let $u = \sin(kx) \sin(akt)$ a) Find u_{xx} . Ans: _____	b) Show that u satisfies the wave equation. Ans: _____		
5.	Write the chain rule formula for w_s in the following cases: a) $w = f(x, y, z)$, $x = x(s, t)$, $y = y(s, t)$, $z = z(s, t)$. Ans: _____	b) $w = f(x, y)$, $x = x(s, t)$, $y = g(x, t)$. Ans: _____		
Extra space				

