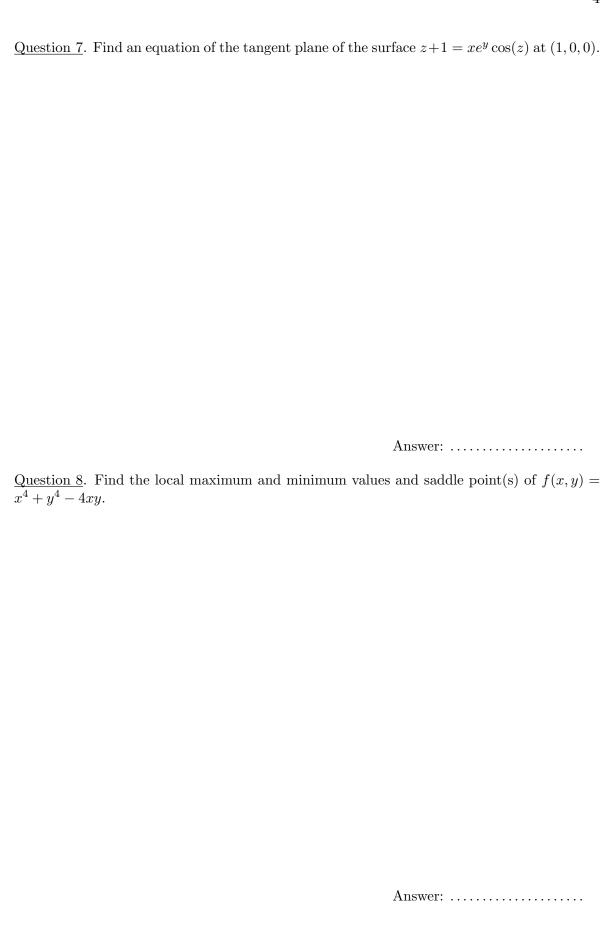
## MA227-6D, CALCULUS III

October 24, 2012

Name (Frint last name first):
Student Signature:
TEST II
TEST II
Each question is worth 10 points. Show all of your work for full credit.
Question 1. Find the partial derivatives $f_{xx}$ , $f_{xyy}$ if $f(x,y) = x\cos(y) + xy$ .
Answer:
Question 2. Find the following limit if it exists, or show it does not exist
$\lim_{(x,y)\to(0,0)} \frac{x^2 - 2y^2}{x^2 + y^2}.$
$(x,y) \rightarrow (0,0)$ $x + y$
Answer:

Question 3. Let $f(f_s, f_t)$ (Do NOT sim	$(x, y, z) = xe^y - \sin \theta$	1(xz) + yz and	$10^{\circ} x = 3 \cos i, g$	$t = s \sin t, z =$	$s + \iota$ .
Question 4. Use di				esosed can with	
Question 4. Use diand height 10 in if					
			nt of tin in a cl		n radiu

Question $5$ . plify).	Use implicit	differentiatio	n to find $z_x$ ,	$z_y$ if $xyz = \ln(x)$	+y+z) (D	o NOT sim
				Answer:		
Question $\underline{6}$ . $(0,0,1)$ and	Find maximuthe direction	ım rate of cha	ange of the fu	nction $f(x, y, z)$		
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Question $6$ . $(0,0,1)$ and	Find maximum the direction	im rate of cha	ange of the fu			



Answer:
rectangular box with largest volume