

Name:

Section (circle one):

10-11

11-12

1. Find the tangent plane for  $z = e^{\sin^2 x + \cos^2 y - 1}$  at the point  $(\pi, \pi, 1)$ .

2. Find  $\frac{\partial z}{\partial s}$  and  $\frac{\partial z}{\partial t}$  in terms of  $s$  and  $t$  only, where  $z = e^\alpha \sin \beta$ ,  $\alpha = s^2 + t^2$ , and  $\beta = s - 2t$ .