

Show all work. 5 points each.

1) Find the maximum rate of change of  $f(x, y) = \frac{y^2}{x}$  at the point  $(2, 4)$ .

2) Find the equation of the tangent plane for  $x^2 - 2y^2 + z^2 + yz = 2$  at  $(2, 1, -1)$ .