

Show all work. 5 points each.

1) Given $z = \sqrt{4 - x^2 - 2y^2}$ find $\frac{\partial^2 z}{\partial x \partial y}$

2) Find the equation of the tangent plane to $z = \sqrt{4 - x^2 - 2y^2}$ at the point $(1, -1, 1)$. Hint: use $(z - z_0) = f_x(x - x_0) + f_y(y - y_0)$