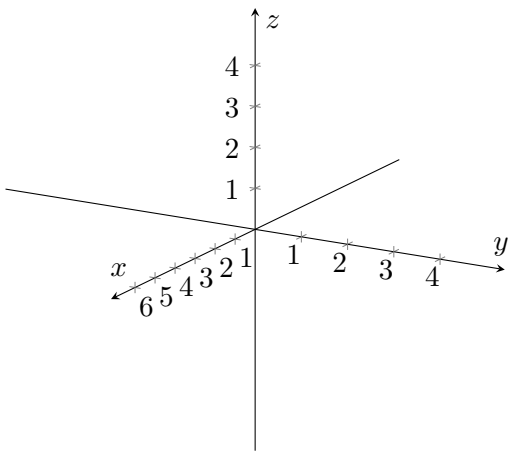
MATH 202 Name: _____

Quiz 4 February 19, 2020

Instructions: Five points total.

1. (4 pts.) Consider the function of two variables $f(x, y) = -x^2 + 4y^2$



   (a) (1 pt.) Sketch the surface on the axes to the right.

   (b) (3 pts.) Find the equation of the tangent plane to $f(x, y)$ at the point $(a, b) = (2, 1)$. Simplify your answer.

2. (1 pt.) Use **implicit differentiation** to solve for $\frac{\partial z}{\partial y}$ in the implicitly defined surface

$$\tan(xz) + xyz = 1$$