

Instructions: Show Your Work!

1. (3 pts) Find the equation for the plane through the points $(1, 1, -1)$, $(2, 0, 2)$, and $(0, -2, 1)$.

2. (4 pts) Sketch the surface

$$z^2 - x^2 - y^2 = 1.$$

3. (3 pts)

Find the limit or show that the limit does not exist.

$$\lim_{(x,y) \rightarrow (0,0)} \frac{2x}{x^2 + x + y^2}.$$
