MATH 201 QUIZ 2

SECTION:

ID:

NAME:

1. Let l be the line passing through $P(0,0,1)$ and $Q(2,1,0)$. Find the intersection point of l with the plane $4x - y + 5z = 9$.

2. Find the equation of the trace (cross-section) of the surface $4x^2 - y^2 + z^2 = 4$ on the plane $z = 2$, and describe it.

3. Sketch the k-level curves of the function $f(x,y) = \sqrt{x - y^2 + 1}$ for $k = 0, 1, 2$.

4. Determine whether or not the following limits exist.
   (a) $\lim_{(x,y)\to(0,0)} \frac{x \sin y^2}{x^2+y^4}$.
   (b) $\lim_{(x,y)\to(0,0)} \frac{x^2 \sin y^2}{x^2+y^4}$.