KFUPM **QUIZ (3b)** **MATH 201-181**

Name:_____S.ID:_____Sec.( ) Ser.# ( )

Q1) Consider the following two lines:

$$r = \langle 1,1,0\rangle + t\langle 1,-1,2\rangle,$$
$$r = \langle 2,0,2\rangle + s\langle -1,1,0\rangle.$$

(a) Find the point at which the given lines intersect.

(b) Find an equation of the plane that contains these lines.

Q2) Reduce the equation to one of the standard forms and identify (name, axes, vertex) the surface: $y = x^2 + z^2 - 2x - 4z + 5$.

Q3) Find and sketch the domain of the function $f(x,y) = \frac{\sqrt{x-2}+\sqrt{y-1}}{x-y}$.

Q4) Find the limit, if it exists, or show that the limit does not exist: $\lim\limits_{(x,y)\to(0,0)} \frac{y^2 \sin^2 x}{x^4+y^4}$.