Name: _____

Quiz #5

In class. 25 minutes. No textbook or notes or calculator. 30 points total.

1. **(a)** (*6 pts*) Find the first partial derivatives if
$$v = \sin(s^2 - 3t)$$

(b) (*8 pts*) Now find all second partial derivatives.

2. (*8 pts*) Find an equation of the tangent plane to the surface at the given point:

$$z = e^{x-y}, \qquad (2, 2, 1)$$

Simplify the equation to the form $ax + by + cz + d = 0$.

3. (*8 pts*) Use implicit differentiation to find $\partial z/\partial x$ and $\partial z/\partial y$.

$$x^2 + 2y^2 + z^4 = z$$