

**Quiz #7; Tuesday, date: 03/06/2018**  
**MATH 53 Multivariable Calculus with Stankova**  
**Section #117; time: 5 – 6:30 pm**  
**GSI name: Kenneth Hung**  
**Student name:**

1. Find the first partial derivatives of  $f(x, y) = x^y$ . Then use chain rule to find the derivative of  $t^t$  with respect to  $t$ .
2. *True / False?* Given a function at  $f$ , defined on a disc near the origin. To show that  $f$  is not differentiable at the origin, it suffices to find three curves through the origin, such that their tangent lines at the origin do not lie on the same plane.
3. *True / False?* Suppose

$$z = f(x, y), \quad x = g(t, u), \quad y = h(u, v),$$

then by chain rule we have

$$\frac{\partial z}{\partial t} = \frac{\partial z}{\partial x} \frac{\partial x}{\partial t}.$$