

**Quiz #6; Tuesday, date: 02/27/2018**  
**MATH 53 Multivariable Calculus with Stankova**  
**Section #114; time: 2 – 3:30 pm**  
**GSI name: Kenneth Hung**  
**Student name:**

1. Find the limit, if it exists, or show that the limit does not exist.

$$\lim_{(x,y) \rightarrow (0,0)} \frac{xy^3}{x^2 + y^6}$$

2. *True / False?* If  $f$  is a function whose domain contains points arbitrarily close to  $(2, 3)$ , then

$$\lim_{(x,y) \rightarrow (2,3)} f(x, y) = (2, 3).$$

3. *True / False?* Consider two functions  $f$  and  $g$  that are both defined on the domain of  $f$ . Suppose the domain of  $f$ ,  $D_f$  is contained in the domain of  $g$ ,  $D_g$  (i.e.  $D_f$  is a subset of  $D_g$ ) and  $f(x) = g(x)$  for any points  $x$  in  $D_f$ . If the origin is in  $D_f$  and  $f$  is continuous at the origin, then  $g$  is also continuous at the origin.