

**Quiz #11; Tuesday, date: 04/10/2018**  
**MATH 53 Multivariable Calculus with Stankova**  
**Section #114; time: 2 – 3:30 pm**  
**GSI name: Kenneth Hung**  
**Student name:**

1. Find the gradient vector field  $\nabla f$  of  $f$  and sketch it.

$$f(x, y) = x(x + y)$$

2. *True / False?*  $\mathbf{F}(x, y) = \langle x^2, y^2 \rangle$  is a conservative vector field.
3. *True / False?* Suppose  $f$  is a scalar function and  $\nabla f$  is a force field. The work done by this force field along any one level curve of  $f$  is zero.