Quiz 3

Name: _____

Let $f(x, y) = \frac{x}{x+y}$.

1) Find the gradient vector of f.

2) Find the the gradient vector of f at $(x, y) = (1, 2)$.

3) Find the rate of change of f in the direction of vector $v = (-4, 3)$ at $(x, y) = (1, 2)$.

4) At the point $(1, 2)$, in what direction does f have the maximum rate of change? What is this maximum rate of change?