

# MATH 251: Practice 8

June 8, 2015

Name: \_\_\_\_\_

1. Evaluate the following limits.

$$\lim_{(x,y) \rightarrow (1,1)} e^{xy} + \frac{x}{y} \qquad \lim_{(x,y) \rightarrow (2,1)} \frac{(x^2 - 4)(y^2 - 1)}{(x - 2)(y - 1)}$$

2. Show that

$$\lim_{(x,y) \rightarrow (0,0)} \frac{x^2 y}{x^4 + y^2}$$

does not exist. Hint: Consider paths of the form  $y = mx^2$  for varied  $m$ .