

Show all work. 5 points each.

1) Draw a contour map of the function  $f(x, y) = xy$  showing at least 4 level curves.

2) Show the limit doesn't exist. Hint: Approach the origin along the  $x$  - *axis* and  $y$  - *axis*.

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