MATH 241 - Quiz 5

Question 1

(a) The shape of 2-contour (level-2 set) of the function $f(x, y) = \frac{1}{x^2+y^2-1}$ is

(b) Find the 0-contour of the function $f(x, y) = xy(6 - x - y)$

Question 2 Find the limit if it exists, or show that the limit does not exist:

(a) $\lim_{(x,y)\to(1,1)} \frac{\sin x - \sin y}{x^2-y^2}$

(b) $\lim_{(x,y)\to(0,0)} \frac{x^5+y^5}{x^2y^2}$