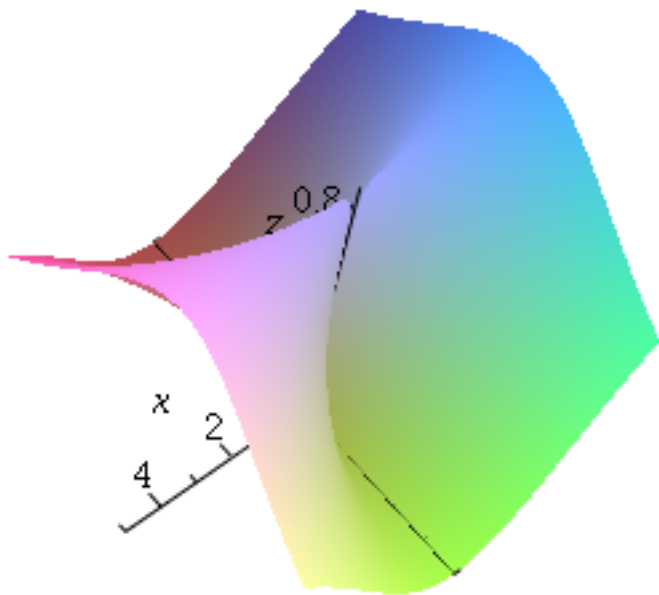
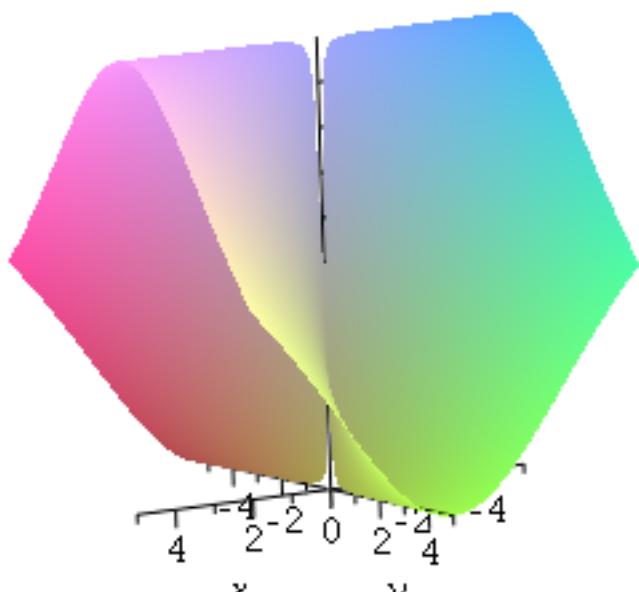
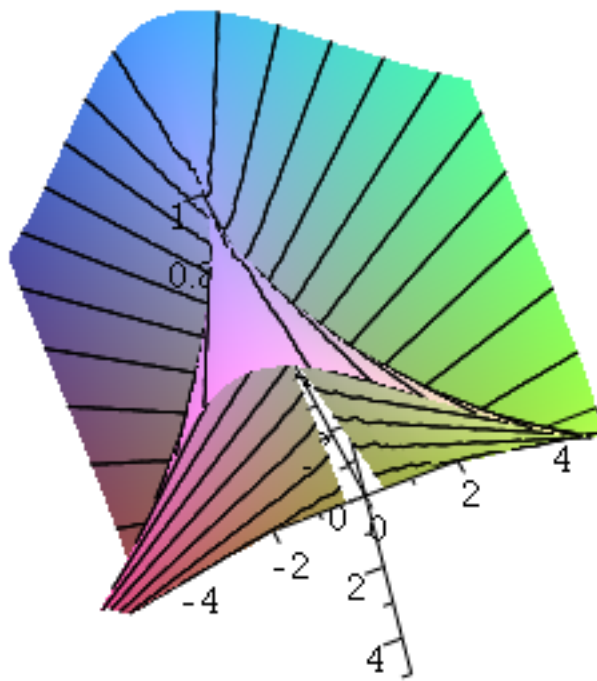
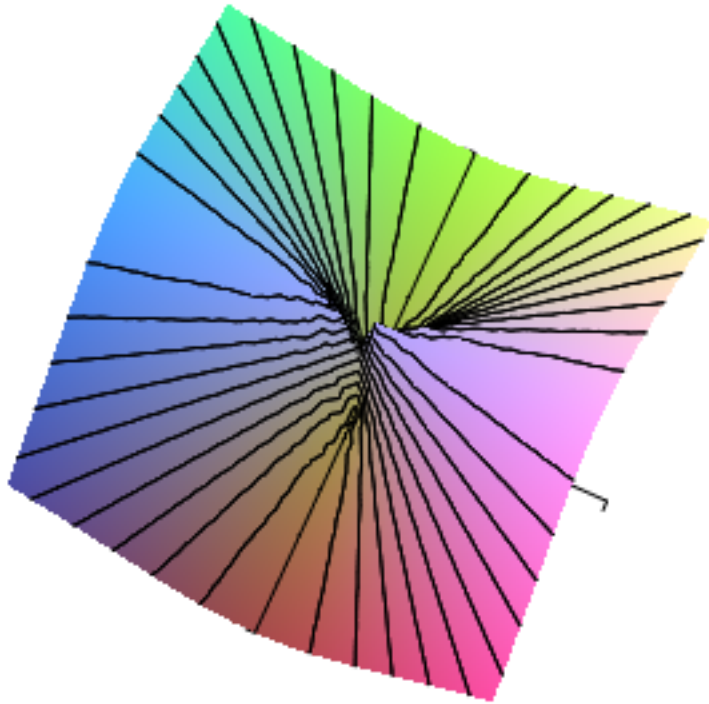


Section 15.2

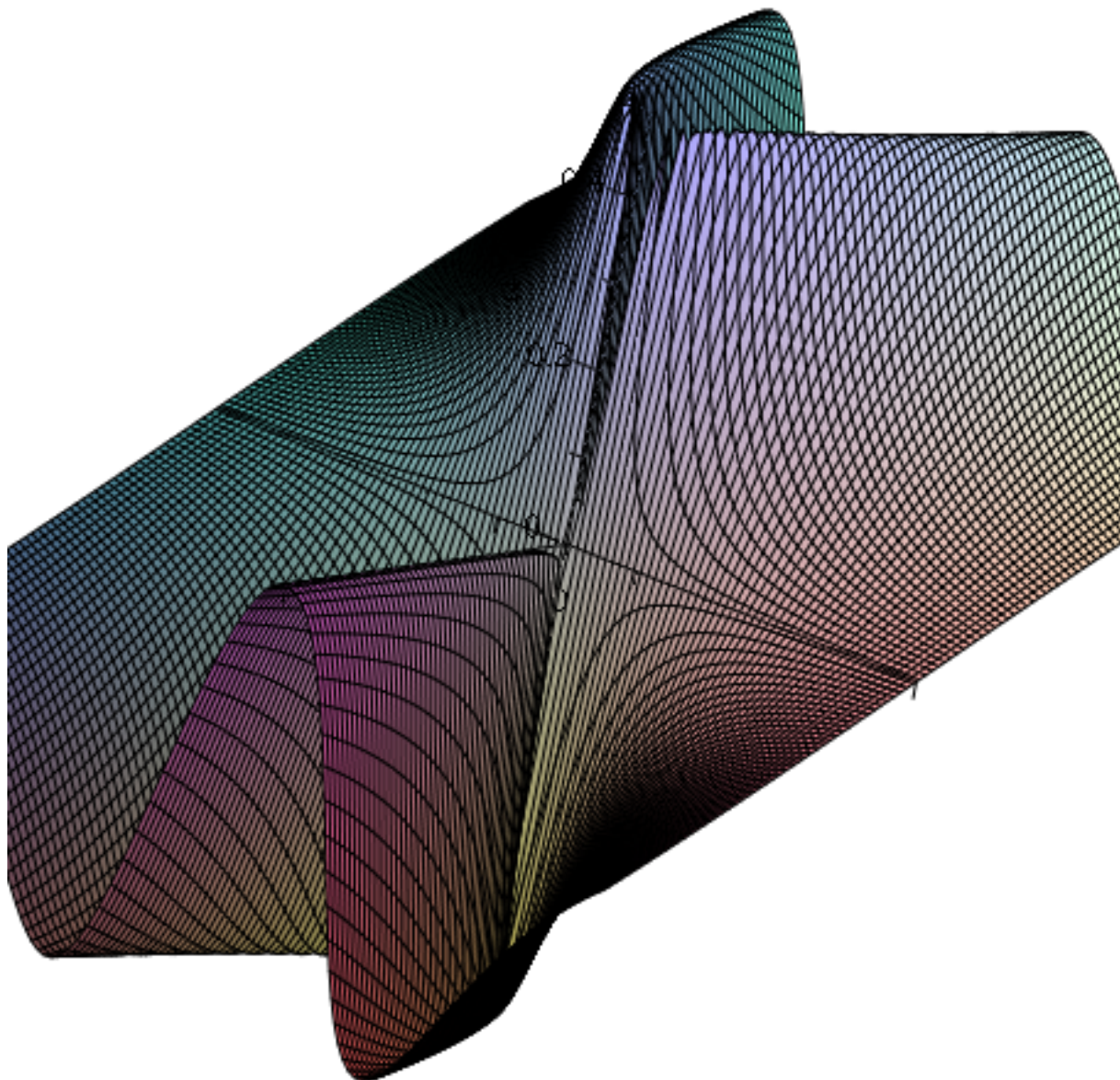
Two views of the function $f(x, y) = \frac{x^2}{x^2 + y^2}$. The limit as (x, y) approaches $(0, 0)$ is not defined since the values along the x and y axis tend to different numbers.



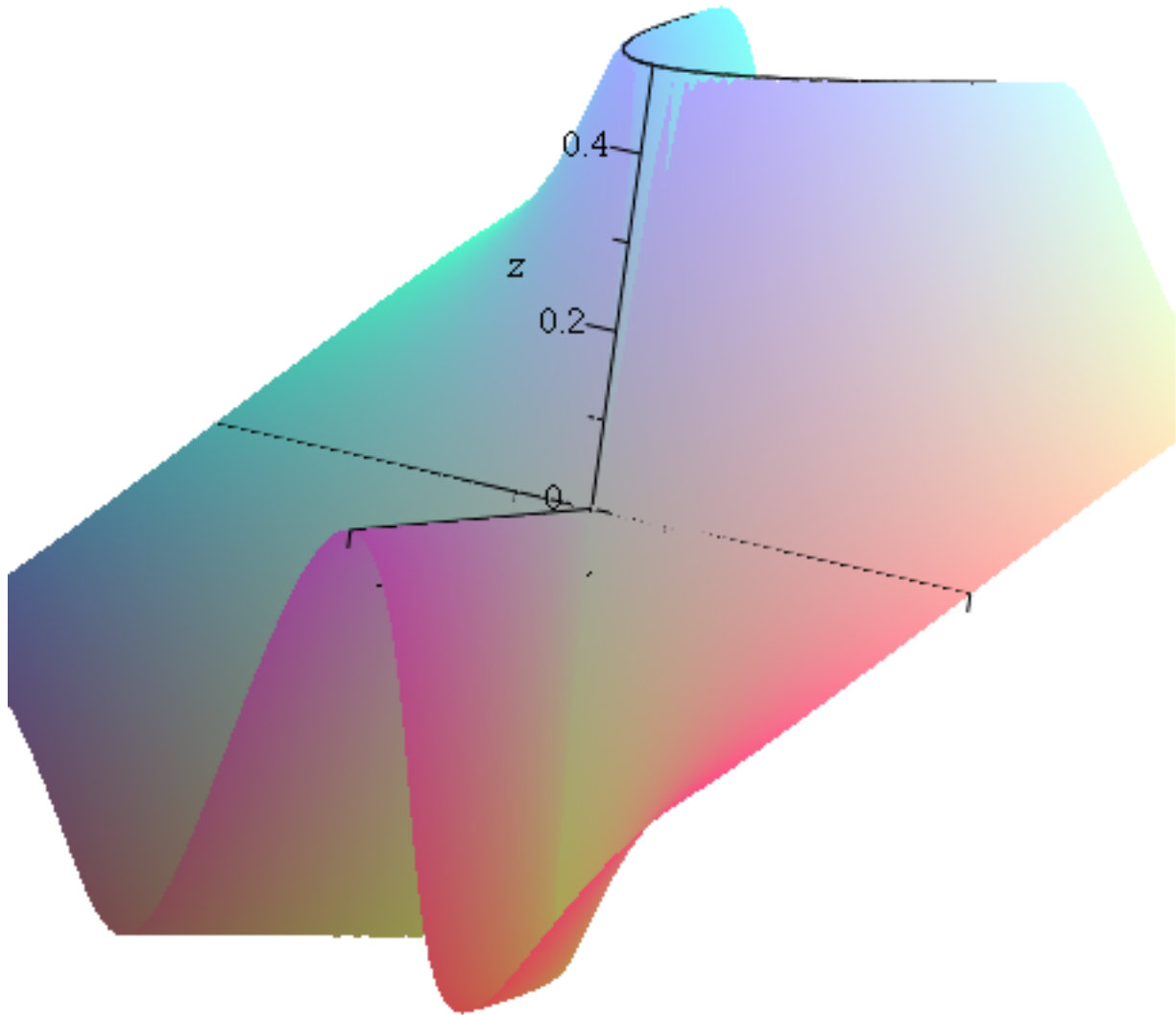
Two views of the contour plot for this function. There is no way to get arbitrarily close to $(0,0)$ from every direction.



A plot of the function $f(x) = \frac{x^2 \cdot y}{x^4 + y^2}$



The surface above with the equation $y = x^2$ plotted in black. Notice that the limit as (x,y) approaches $(0,0)$ does not exist since along the line in black the graph approaches $\frac{1}{2}$ but along straight lines, it approaches 0.



The function $f(x, y) = \frac{x \cdot y}{x^2 + y^2}$ which does approach 0 along the x and y axis, but not along the line $y=x$, which is plotted in black.

