

Let  $f(x, y) = \frac{6x^3y}{2x^4 + y^4}$ , and consider  $\lim_{(x,y) \rightarrow (0,0)} f(x, y)$ .

1. Find the limit as you approach the origin along the  $x$ -axis.
2. Find the limit as you approach the origin along the  $y$ -axis.
3. Find the limit as you approach the origin along the line  $y = x$ .
4. Find the limit as you approach the origin along the line  $y = mx$ .

