$f(x,y) = 15x^3y/(2x^4+y^4)$. On the x -axis, $f(x,0) = 0$ for $x \neq 0$, so $f(x,y) \to 0$ as $(x,y) \to (0,0)$ along the x-axis. Approaching $(0,0)$ along the line $y = x$ gives $f(x,x) = 15x^4/(3x^4) = 5$ for $x \neq 0$, so along this line $f(x,y) \to 5$ as $(x,y) \to (0,0)$. Thus the limit does not exist.