

per quali $a > 0$ il limite per $x^2 + y^2 \rightarrow +\infty$ di $f(x,y) = (x|y|^a)/(1+x^4+y^2)$ esiste?

$$1) \quad y=0 \quad \leadsto \quad \frac{x|y|^a}{1+x^4+y^2} = 0 \quad \forall a > 0$$

$$2) \quad x=0 \quad \leadsto \quad \frac{x|y|^a}{1+x^4+y^2} = 0 \quad \forall a > 0$$

$$3) \quad x \neq 0 \wedge y \neq 0$$

$$\frac{x|y|^a}{1+x^4+y^2} = \frac{\rho^{a+1} \cos\theta \sin^a\theta}{1+\rho^4 \cos^4\theta + \rho^2 \sin^2\theta} \rightarrow 0 \Leftrightarrow a+1 < 4$$

$$\leadsto a < 3$$