1. $\displaystyle\lim_{(x,y)\to(0,0)} \frac{2x}{2x+3y}$

   Let $y = cx$

   $\displaystyle\lim_{x\to 0} \frac{2x}{2x+3cx}$

   $= \displaystyle\lim_{x\to 0} \frac{2x}{(2+3c)x} = \frac{2}{2+3c}$

   Since it depends on c, the limit does not exist.

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

   Let $y = cx$

   $\displaystyle\lim_{x\to 0} \frac{x^5}{x^2+(cx)^2} = \lim_{x\to 0}\frac{x^5}{x^2+x^2 c^2} = \lim_{x\to 0}\frac{x^5}{x^2(c^2+1)} = \lim_{x\to 0} x^3(c^2+1) = 0$

   Since it does not depend on c,
   the limit exists.