

HOMEWORK # 18, written assignment

Consider the function

$$f(x, y, z) = \frac{xyz}{x^2 + y^4 + z^4}.$$

- (a) Find the limit of f as $(x, y, z) \rightarrow (0, 0, 0)$ along all lines through the origin.
(b) Does the limit

$$\lim_{(x,y,z) \rightarrow (0,0,0)} f(x, y, z)$$

exist? (Hint. Consider the curve $x = t^2$, $y = t$, $z = t$.)