

Worksheet: Limits of functions of 2 or 3 variables

1. Compute the limit: $\lim_{(x,y) \rightarrow (2,3)} \frac{1}{y} - \frac{4}{x} =$

2. Compute the limit: $\lim_{(x,y) \rightarrow (0,0)} \frac{x^2 - xy}{\sqrt{x} + \sqrt{y}} =$

3. Where is the function $f(x, y) = \frac{1}{y(x-1)}$ continuous? Find the largest region.

4. Where is the function $g(x, y, z) = \frac{1}{x^2 + z^2 - 1}$ continuous? Find the largest region.

5. If $f(x, y) = x^2 - 3y$, find the limit: $\lim_{h \rightarrow 0} \frac{f(1+h, y) - f(1, y)}{h} =$