Show all work and don’t forget to check your answers.

1. (3 points) Given a function $f(x, y)$, what is the largest its domain can be?

2. (2 points) If $f(x, y) = 5x^2 + 2y - 3^{-xy}$, then what is $f(2, -1)$?

3. (1 point) Suppose a function $g(x, y)$ is found to have a limit of 3 as $(x, y) \to (0, 0)$ along the $x$-axis, and a limit of 3 as you approach along the $y$-axis. Does this guarantee that $\lim_{(x,y)\to(0,0)} g(x, y) = 3$? (yes or no)

4. (3 points) Define continuity of a function of two variables.

5. (1 point) What is your teacher’s name?