This quiz is due at the start of class on Tuesday, February 17, 2015. To get credit for this quiz, you must turn in this sheet when you turn in the quiz.

1. Find and sketch the domain of the function.

2. \( f(x, y) = \sqrt{16 - 4x^2 - y^2} + \ln(x^2 + y^2 - 1) \)

3. Explain why this limit does not exist.

\[
\lim_{(x,y) \to (0,0)} \frac{4x^2 + 3xy^3}{x^2 + y^2}
\]