Homework 23: Due Thursday, December 5

1. Find the maximum(s) and/or minimum(s) of the following functions subject to the constraint. If you are unsure, it helps to graph the level curves and the constraint.

   (a) \( f(x, y) = y^2 + x^2 \) subject to \( xy = 1 \)
       Hint: The points you will find have the same value when plugged into \( f \). Determine if they are a max or a min by considering another point that satisfies the constraint.

   (b) \( f(x, y) = e^{xy} \) subject to \( x^3 + y^3 = 16 \).
       Hint: You will only get one critical point. Consider another point on the constraint to determine if this point is a max or a min.