

Section 14.1: Additional Problems

1. Find and sketch the domain: $f(x, y) = \ln(16 - x^2 - 4y^2)$
2. Find and sketch the domain: $f(x, y) = \frac{\ln(2 - x)}{1 - x^2 - y^2}$
3. Sketch level curves(traces) for this function. What are the shapes of these level curves? Find two points that are on the graph of the level curve $f(x, y) = 3$
 $f(x, y) = \ln(x^2 + 4y^2)$
4. Sketch level curves(traces) for this function. What are the shapes of these level curves? Find two points that are on the graph of the level curve $f(x, y) = 3$
 $f(x, y) = \sqrt[3]{x^2 + y^2}$
5. Determine the shape of the level surfaces for $f(x, y, z) = 10 + x^2 + 3y^2 + 4z^2$