

Math 212 Spring 2020
Multivariable Calculus Written HW 1
Due Wednesday, January 29

1. Sketch cross-sections for the graph of $f(x, y) = x^2 + y^2$. Do at least four cross-sections with respect to each variable.
2. Sketch cross-sections for the graph of $g(r, h) = \pi r^2 h$. Do at least four cross-sections with respect to each variable.
3. Sketch and label level surfaces of $f(x, y, z) = 4 - x^2 - y^2 - z^2$ for $f = 0, 1, 2$.
4. Sketch a contour diagram for the function $f(x, y) = y - x^2$, using at least four contours. Describe the contours and what you can say about the graph from the contour diagram, in words.