

Problem 1.

1. State and sketch the domain of the following functions.

(a)  $f(x, y) = \frac{1}{x^2+y^2}$

(b)  $f(x, y) = \sqrt{y - 2x^2}$

(c)  $f(x, y) = \sqrt{9 - x^2 - y^2}$

(d)  $f(x, y, z) = \sqrt{4 - x^2 - y^2 - z^2}$

(e)  $f(x, y) = \log_x(x + y + 1)$

Could you sketch the graph of some, too?