

Math 16C
Vogler
Worksheet 3

Neatly sketch the level curves in the xy -plane for each of the equations below using the following values for z : $-3, -2, -1, 0, 1, 2, 3$. After determining the level curve, sketch the related surface in 3D-space (or at least describe in words what you think the surface is).

1.) $z = x - 2y$

2.) $z = x^2 - y$

3.) $z = x^2 + y^2$

4.) $z = e^{-x} + y$

5.) $x^2 + y^2 + z^2 = 9$

6.) $z = \frac{x + y}{x - y}$

7.) $z = \ln x - y$

8.) $z^2 = x^2 + y^2$

9.) $z^2 = x^2 + y^2 + 1$

10.) $z^2 = x^2 + y^2 - 1$