

Math 53 Discussion Problems Sept 19

1. Find the distance from the point $(-1, 4, 3)$ to the line $x = 10 + 4t, y = -3, z = 4t$.
2. Find the distance from the point $(1, 0, -1)$ to the plane $-4x + y + z = 4$.
3. Find the distance from the plane $x + 2y + 6z = 1$ to the plane $x + 2y + 6z = 10$.
4. Find the distance from the line $x = 2 + t, y = 1 + t, z = -\frac{1}{2} - \frac{1}{2}t$ to the plane $x + 2y + 6z = 10$.
5. Sketch the surface defined by the equations.
 - (a) $z = x^2 + 4y^2$
 - (b) $4x^2 + 4y^2 + z^2 = 16$
 - (c) $-x^2 + y^2 + z^2 = 1$
 - (d) $x^2 - y^2 = z$
 - (e) $x^2 + 4z^2 = 16$
 - (f) $4x^2 + 9z^2 = 9y^2$