1. Determine if the lines are parallel, skew, or intersecting. If the lines intersect, find the point of intersection.

$$L_1 : x = 1 - t, \ y = 2t, \ z = 3 + 2t$$
$$L_2 : x = 3 + s, \ y = -4 - s, \ z = -1 + 3s$$

2. Find an equation for the plane containing the lines from problem 1.

3. Determine the distance from the line $-2x = y = z$ to the plane you found in problem 2.