

**Note:** *The score you earn will be based on the correctness of your solutions. A “right answer” will earn no credit without a correct solution to support it.*

(6 points) 1. Find the intersection of the planes  $x + (y - 1) + z = 0$  and  $-x + (y + 1) - z = 0$ .

(6 points) 2. Find an equation for the plane containing the two parallel lines

$$\mathbf{v}_1 = (0, 1, -2) + t(2, 3, -1) \text{ and}$$

$$\mathbf{v}_2 = (2, -1, 0) + t(2, 3, -1).$$

(6 points) 3. Sketch or describe the surface in  $\mathbb{R}^3$  with the equation  $\frac{x}{4} = \frac{y^2}{4} + \frac{z^2}{9}$ .