

3. Consider the following three planes, where we use (x, y, z) to denote points in \mathbf{R}^3 :

$$2x + 4y + 4z = 1$$

$$2x + 5y + 2z = -1$$

$$y + 3z = 8$$

Do all three of the planes intersect? If so, do they intersect at a single point, a line, or a plane?

4. Find all values of h so that the lines $x + hy = -5$ and $2x - 8y = 6$ do *not* intersect, and indicate what this means for the set of solutions to the linear system of equations

$$x + hy = -5$$

$$2x - 8y = 6.$$

For all h so that the lines do not intersect, draw the line $x + hy = -5$ and the line $2x - 8y = 6$ to verify that they do not intersect.