

1. a) Do the following two lines intersect?

$$\begin{array}{ll} x = 2 + t & x = 3s \\ y = -2t & y = 1 + s \\ z = 1 - t & z = 4 + s \end{array}$$

- b) Are the directions perpendicular?

- c) Can you find a plane that contains both lines? Why or why not?

2. Find the equation of the line formed by the intersection of the two planes

$$x + 3y + z = 4$$

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