Math 1210 Tutorial 6

1. Find parametric equations for the line that passes through the origin and is parallel to the line

$$x + 2y + z = 7, \quad x - y - 3z = 25.$$

2. Find symmetric equations for the line that passes through the point $(-1, 3, 4)$ and the point where the z-axis cuts the plane $x + 2y - 3z = 6$.

3. Find parametric equations for the line

$$x - 2y + 3z = 4, \quad 2x + y - z = -2.$$

4. Find the equation of the plane containing the point $(1, 3, -2)$ and the line

$$x = 3 + t, \quad y = -2 + 4t, \quad z = 1 - 2t.$$

5. Find the equation of the plane containing the two lines

$$x = 2 + 6t, \qquad\qquad \frac{x-1}{3} = \frac{2y+5}{-4} = \frac{1-z}{-4}.$$
$$y = 3 - 4t,$$
$$z = 1 + 8t,$$

6. Find the equation of the plane containing the two lines

$$x = 1 + 2t, \qquad\qquad x = 1 + s,$$
$$y = 2 - t, \qquad\qquad y = 5 - 2s,$$
$$z = 3 + 3t, \qquad\qquad z = -2 + 4s.$$

Answers:

1. $x = -5t, \ y = 4t, \ z = -3t$
2. $-x = \dfrac{y}{3} = \dfrac{z+2}{6}$
3. $x = -t, \ y = -2 + 7t, \ z = 5t$
4. $2x - 7y - 13z = 7$
5. $44x - 8y - 37z = 27$
6. $2x - 5y - 3z = -17$