MATH 120 2014-2 RECITATION PROBLEMS WEEK 5

(1) Find the volume of the tetrahedron with vertices $(1, 0, 0), (1, 2, 0), (2, 2, 2), (0, 3, 2)$.

(2) Find equation of the plane through $(1, 1, 1)$ and $(2, 0, 3)$ and perpendicular to the plane $x + 2y - 3z = 0$.

(3) Find equations of the line through $(-1, 0, 1)$ and perpendicular to the plane $2x - y + 7z = 12$.

(4) Find equations of the line through $(0, 0, 1)$ and parallel to the line of intersection of planes $x + 2y - z = 2$ and $2x - y + 4z = 5$.

(5) Find the distance between the line $x - 2 = \dfrac{y + 3}{2} = \dfrac{z - 1}{4}$ and the plane $2y - z = 1$:

(6) Find distance from $(0, 0, 0)$ to the line of intersection of $x + y + z = 0$ and $2x - y - 5z = 1$.

(7) Find the distance and the angle between the lines

$$x + 2y = 3$$

$$y + 2z = 3$$

and

$$x + y + z = 6$$

$$x - 2z = -5$$

(8) Let $A = (1, 1, 1), C = (3, 5, -2)$. Express C as the sum of two vectors one along $A (pA)$ one perpendicular to A ($B = C - pA$ with $A \cdot B = 0$).

(9) Find parametric equations of the plane perpendicular to $14x + 2y + 7 = 0$, containing the origin and making an angle $\pi/4$ with the z-axis.

(10) Find the angle between the planes $2x - y + z = 1$ and $x + 3y + 2z = 5$.