Math 1451, Honor Calculus Practice2, Spring 2016.

January 29, 2016

PSID: _____   Name: _____

1. Given a line with parametric equations $x = 2 - t, y = 1 + 3t, z = 4t$.

   (a) Write down the symmetric equation of this given line.

   (b) Given a plane $2x - y + z = 2$. Find out the point in which the given line intersects the given plane.

2. Find the equation of the plane through $(1, 2, -2)$ that contains the line $x = 2t, y = 3 - t, z = 1 + 3t$.

3. Determine whether the lines given by the symmetric equations

$$\frac{x-1}{2} = \frac{y-2}{3} = \frac{z-3}{4} \quad \text{and} \quad \frac{x+1}{6} = \frac{y-3}{-1} = \frac{z+5}{2}$$

are parallel, skew, or intersecting.

If they are parallel or skew, find out the distance between them. If they are intersecting, find out the acute angle between them.

4. Find the distance from the origin to the line $x = 1+t, y = 2-t, z = -1+2t$.

$$\frac{x-1}{2} = \frac{y-2}{3} = \frac{z-3}{4} \quad 2 \quad \text{and} \quad \frac{x+1}{6} = \frac{y-3}{-1} = \frac{z+5}{2}$$