Quiz 3 (A1 & A2)   Mark _____/25

Last Name:_____ First Name:_____ Student #_____

1. [4 points]
Find vector and parametric equation of the plane that contains the given point and is parallel to the two vectors.

Point: (-3,1,0); Vectors $\vec{v}_1 = \begin{bmatrix} 0,-3,6 \end{bmatrix}$ and $\vec{v}_2 = \begin{bmatrix} -5,1,2 \end{bmatrix}$

2. [3 points]

Find the area of the triangle that has the given vertices: $P_1(2,6,-1),\ \ P_2(1,1,1),\ \ \ P_3(4,6,2)$

3. [6 points]

Determine whether $\vec{u}, \vec{v}, \vec{w}$ lie in the same plane when positioned so that their initial points coincide. $\vec{u} = [-1,-2,1], \vec{v} = [3,0,-2], \vec{w} = [5,-4,1]$

4. (4 points)

Use the Subspace test to determine which of the sets are subspaces of R^3

a) All vectors of the form [a,0,0]

b) All vectors of the form [a,b,c], where b = a+c+1

5. (3 points)

Determine whether the following polynomials span P_2.

$p_1 = 1 - x + 2x^2; \quad p_2 = 3 + x; \quad p_3 = 5 - x + 4x^2; \quad p_4 = -2 - 2x + 2x^2$

6. (5 points)

Show that the vectors $\vec{u} = \begin{bmatrix} 1,2,3,4 \end{bmatrix}, \quad \vec{v} = \begin{bmatrix} 0,1,0,-1 \end{bmatrix}, \quad \vec{w} = \begin{bmatrix} 1,3,3,3 \end{bmatrix},$ form a linearly dependent set in R^4