MATA23 TUT6

Quiz 2 (A1 & A2)

Mark _____/25

Last Name:_____ First Name:_____ Student #_____

1. [5 points]
Use row reduction to evaluate the determinant of the matrix. Do not use cofactors.

$$\begin{bmatrix} 3 & 6 & -9 \\ 0 & 0 & -2 \\ -2 & 1 & 5 \end{bmatrix}$$

2. [4 points]
Find a point-normal form of the equation of the plane passing through $P(1,1,4)$ and having $\vec{n} = (1,9,8)$ as a normal.

3. [9 points]

Solve the system using Cramer's rule.

$$\begin{cases} 4x+5y=2 \\ 11x+y+2z=3 \\ x+5y+2z=1 \end{cases}$$

4. (3 points)

If $\vec{a}$ *and* $\vec{b}$ are orthogonal vectors then $proj_{\vec{a}}(proj_{\vec{b}}(\vec{u})) = ?$

5. (4 points)

Find the vector component of $\vec{u}$ along $\vec{a}$ and the vector component of $\vec{u}$ orthogonal to $\vec{a}$.

$\vec{u} = (3,-2,6),\ \vec{a} = (1,2,-7)$