

GEORGIA TECH

SCHOOL OF MATHEMATICS

MATH 1502 D

CALCULUS II
Quiz # 12
November 23th 2009
15 minutes

First Name : -----

Last Name : -----

1. Compute the determinant of $A = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}$.

(Give results here and use the back pages for your calculations)

$$\det(A) =$$

2. Let $\mathbf{v}_1 = \begin{bmatrix} 1 \\ 0 \\ 1 \end{bmatrix}$, $\mathbf{v}_2 = \begin{bmatrix} 1 \\ -1 \\ 1 \end{bmatrix}$ and $\mathbf{v}_3 = \begin{bmatrix} 0 \\ 1 \\ 1 \end{bmatrix}$. Compute the volume of the parallelepiped built from these three vectors

(Give results here and use the back pages for your calculations)

$$\text{Volume} =$$

3. Let $\mathbf{a} = \begin{bmatrix} 2 \\ 0 \\ 1 \end{bmatrix}$, $\mathbf{b} = \begin{bmatrix} 1 \\ -1 \\ 1 \end{bmatrix}$.

(a) Compute their cross product

(Give results here and use the back pages for your calculations)

$$\mathbf{a} \times \mathbf{b} = \begin{bmatrix} \\ \\ \end{bmatrix}$$

(b) Give an *equation* for the plane generated by these two vectors

(Give results here and use the back pages for your calculations)

Equation :

(c) Give the *Area* of the *triangle* with vertices at zero and at these two vectors

(Give results here and use the back pages for your calculations)

Area of Triangle :

Use this page for your calculations

Use this page for your calculations