Taker Name: Key GTID: 90 Section:

Grader #1: GTID: 90

§§12.4: Cross product

Compute $\mathbf{v} = \mathbf{n}_1 \times \mathbf{n}_2$. Show all your steps [J] and use proper notation [N] for full credit.

$$\mathbf{n}_1 = \langle 1, -2, 2 \rangle, \quad \mathbf{n}_2 = \langle 2, -1, 1 \rangle$$

$\vec{v} = \vec{n}_1 \times \vec{n}_2$

$$= \begin{vmatrix} \hat{\imath} & \hat{\jmath} & \hat{k} \\ 1 & -2 & 2 \\ 2 & -1 & 1 \end{vmatrix}$$

$$= \hat{\imath} \begin{vmatrix} -2 & 2 \\ -1 & 1 \end{vmatrix} - \hat{\jmath} \begin{vmatrix} 1 & 2 \\ 2 & 1 \end{vmatrix} + \hat{k} \begin{vmatrix} 1 & -2 \\ 2 & -1 \end{vmatrix}$$

$$= \hat{\imath}(-2+2) - \hat{\jmath}(1-4) + \hat{k}(-1+4)$$

$$= 0\hat{\imath} + 3\hat{\jmath} + 3\hat{k} = \boxed{\langle 0, 3, 3 \rangle}$$

A	
J	
N	

G2:

A	
J	
N	

G3:

A	
J	
N	