

Name: Conde

15!

Section: A 220

Quiz 2

15 points

24 Oct 08

INSTRUCTIONS: You will have 15 minutes to complete this quiz. Technology is forbidden on this quiz. Find each if possible, otherwise state why not. Show all work for full credit.

Let

$$\vec{v} = \langle -3, 5, -1 \rangle \text{ and } \vec{w} = \langle -2, 1, 0 \rangle$$

and

$$A = \begin{bmatrix} -2 \\ 0 \end{bmatrix}, B = \begin{bmatrix} 2 & -1 \\ 3 & -3 \end{bmatrix} \text{ and } C = \begin{bmatrix} -5 & 1 & 0 \\ 7 & -3 & 2 \end{bmatrix}$$

$-3 + (16) \quad 5 - 3$
 $\quad \quad \quad -1 - 0$
 $\quad \quad \quad \quad \quad -6, 3, 0$

3:00 1. Find $\vec{v} - 3\vec{w}$.

$$\langle -3, 5, -1 \rangle - \langle -6, 3, 0 \rangle = \langle 3, 2, -1 \rangle \text{ ANS}$$

3:00 2. Find $\vec{v} \cdot \vec{w}$. \rightarrow dot product

$$\langle -3, 5, -1 \rangle \cdot \langle -2, 1, 0 \rangle = (-3)(-2) + 5(1) + (-1)(0) = 6 + 5 + 0 = 11 \text{ ANS}$$

3. Find AB .

3:00 $\begin{bmatrix} -2 \\ 0 \end{bmatrix} \begin{bmatrix} 2 & -1 \\ 3 & -3 \end{bmatrix}$ AB NOT POSSIBLE ANS
 2×1 2×2
not same

4. Find BC .

3:00 $\begin{bmatrix} 2 & -1 \\ 3 & -3 \end{bmatrix} \begin{bmatrix} -5 & 1 & 0 \\ 7 & -3 & 2 \end{bmatrix} = \begin{bmatrix} 2(-5) + (-1)(7) & 2(1) + (-1)(-3) & 2(0) + (-1)(2) \\ 3(-5) + (-3)(7) & 3(1) + (-3)(-3) & 3(0) + (-3)(2) \end{bmatrix}$
 2×2 2×3

5. Find B^{-1} .

3:00 $B^{-1} = \frac{1}{\det(B)} \begin{bmatrix} 2 & -1 \\ 3 & -3 \end{bmatrix}$
 $\det(B) = (2)(-3) - (-1)(9) = -6 + 9 = 3$
 $B^{-1} = \frac{1}{3} \begin{bmatrix} -3 & 1 \\ -3 & 2 \end{bmatrix} = \begin{bmatrix} -1 & 1/3 \\ -1 & 2/3 \end{bmatrix}$ ANY
 $\begin{bmatrix} -17 & 5 & -2 \\ -36 & 12 & -6 \end{bmatrix}$ ANS