QUIZ 1 FOR MATH 304-08, 2/3/2023 YOUR NAME _____

Remember that all answers must be fully justified by your work.

(1) (1 points) Circle the word or phrase that you think is closest in meaning to "unique".

Different Distinct Distinctive One of a kind

(2) (12 points) Here are three matrix multiplication problems. Calculate the product if possible. If it's not possible, say why. Show work on this page.

(a) $\begin{bmatrix} 3 & 4 & -8 & -2 \\ 0 & 2 & -3 & 4 \\ 2 & 2 & 5 & 5 \\ -2 & -2 & -5 & -5 \end{bmatrix} \begin{bmatrix} 1 & 5 & 7 & 7 \\ 2 & 1 & 3 & 1 \\ 4 & -1 & -3 & -10 \end{bmatrix}$

(b) $\begin{bmatrix} 3 & 4 & -2 \\ 0 & -3 & 4 \\ 2 & 2 & 5 \\ -2 & -2 & -5 \end{bmatrix} \begin{bmatrix} 1 & 5 & 7 & 7 \\ 2 & 1 & 3 & 1 \\ 4 & -1 & -3 & -10 \end{bmatrix}$

(c) $\begin{bmatrix} 3 & 4 & -2 \\ 0 & -3 & 4 \\ 2 & 2 & 5 \\ -2 & -2 & -5 \end{bmatrix} \begin{bmatrix} 1 & 5 & 7 & 7 \\ 2 & 1 & 3 & 1 \\ 4 & -1 & -3 & -10 \end{bmatrix}^T$

TURN OVER FOR MORE QUESTION(S)

(3) (10+5 points) Consider the line $\overline{PQ}$ in $\mathbb{R}^3$ that passes through the points $P(1,1,1)$ and $Q(1,2,3)$.

(a) Find a parametric equation of the line $\overline{PQ}$.

(b) Is the point $U(4,3,2)$ on the line $\overline{PQ}$?