MATH 2000 **Quiz 2** FEB 8, 2019
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1. Consider the matrices [4]

$$A = \begin{bmatrix} -1 & 3 & 0 \\ 2 & 0 & 4 \end{bmatrix} \text{ and } B = \begin{bmatrix} 1 & 0 \\ 2 & 2 \\ 0 & 0 \end{bmatrix}$$

Find the matrix product AB.

2. Let A be a 3×4 matrix. For the vector $\vec{b} = \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}$, suppose that: [6]

(a) the vector $\vec{v} = \begin{bmatrix} 2 \\ 0 \\ 4 \\ 3 \end{bmatrix}$ is a solution to $A\vec{x} = \vec{b}$, and

(b) A has a reduced echelon form equal to $\begin{bmatrix} 1 & 0 & 7 & 3 \\ 0 & 1 & 0 & -6 \\ 0 & 0 & 0 & 0 \end{bmatrix}$

Using this information, find all solutions to the homogeneous equation $A\vec{x} = 0$, as well as the nonhomogeneous equation $A\vec{x} = \vec{b}$, both written in parametric vector form.