

Quiz 10 Matrix Inverse.

Ma322 Fall 2018 Avinash Sathaye

Calculate the indicated quantities or explain why they don't exist.

- Let $A = \begin{bmatrix} 2 & 3 \\ 5 & 7 \end{bmatrix}$.

Determine A^{-1} or prove that it does not exist. **Answer:** The answer is $\begin{bmatrix} -7 & 3 \\ 5 & -2 \end{bmatrix}$. This is either done by finding the RREF of $(A|I)$ or by the formula.

- Let $B = \begin{bmatrix} 2 & 3 & 0 \\ 5 & 7 & 0 \\ 1 & 2 & 0 \end{bmatrix}$.

Determine B^{-1} , or prove that it does not exist. **Answer:** B clearly has rank at most 2, due to the zero column, so its inverse does not exist!

- **For meditation** For a square matrix P we find the RREF of the augmented matrix $(P|I)$. If we succeed with the Left part becoming I , then the right part gives the inverse. Try this on the above A, B to see what happens when we do not get an I on the left side. **Answer:** This is a prelude to the idea of the consistency matrix, a topic not in the book, but useful for applications