

Homework 7 MATH 304 Section 3

Assigned: Friday, September 19.
Potentially Collected: Monday, September 29.

- Let A be an $m \times n$ matrix and B an $n \times p$ matrix. What, if anything, can you say about the matrix product AB when
 - A has a column consisting entirely of zeros?
 - B has a row consisting entirely of zeros?
- Find a value of r and s so that $AB^T = 0$ where $A = [1 \quad r \quad 1]$ and $B = [-2 \quad 2 \quad s]$.

3.

$$A = \begin{bmatrix} 2 & 2 & 2 & 2 \\ -4 & 0 & 0 & -4 \\ 3 & 3 & 2 & 2 \\ 2 & 4 & 2 & 0 \end{bmatrix}$$

- Find a matrix in REF and a matrix in RREF which are row equivalent to A .
- What is the rank of A ?
- Is A onto? If yes explain why, and if not provide a vector which is in the codomain (range) but not in the image.
- Is A 1-to-1? If yes explain why, and if not provide two different vectors which map to the same vector.