

Math 313 : Chapter 1 - Review

REVIEW OF CONCEPTS:

Elementary row operations; Row Echelon and reduced Row echelon matrices; deduce the nature of the solution set from the (reduced) row echelon form of the augmented matrix of a system of equations.

For appropriate matrices A, B, C , find $A + B, A - B$, the product AB , the transpose A^T , the scalar multiple kA , and the inverse A^{-1} . Review the properties of matrix algebra (Pages 29,30, 39).

Definition of the A^{-1} .

Prove: (i) The inverse of the product $(AB)^{-1} = B^{-1}A^{-1}$, the product of the inverses in the reverse order.

(ii) More generally, $(A_1A_2 \cdots A_n)^{-1} = A_n^{-1} \cdots A_2^{-1} \cdot A_1^{-1}$.

(iii) If $BA = I$, then $B = A^{-1}$.

Review the Theorems 1.2.1, 1.4.3, 1.4.4, 1.4.5, 1.4.6, 1.5.1, 1.6.1, 1.6.2

KNOW the several characterizing statements in the important THEOREM 1.6.4 stating when a matrix A is invertible.

REVIEW OF EXERCISES:

Section 1.2: #4, 5, 6

Section 1.3: # 6

Section 1.4: # 7

section 1.5: # 3, 6, 7

Section 1.6: # 3

Section 1.7: # 3