

1. Answer the following “true” or “false.”
 - (a) Let A be a matrix with rank 0. Then $A = 0$.
2. Let B be the standard basis in P_3 . Let C be the ordered basis $1, (x - 1), (x - 1)^2, (x - 2)^3$. Find a change of basis matrix from B to C , and use it to give the coordinates of $(x - 2)^2$ with respect to C .
3. Give a 3×3 matrix that rotates the xz -plane by 180 degrees and scales the y -axis by a factor of 2. Then give the inverse of this matrix.
4. Give a basis for $NS(A)$. Then give a basis for $RS(A)$. What is $\dim NS(A)$? What is $rk(A)$? As far as what A is, just draw a 3×5 matrix and put random complex numbers in it.