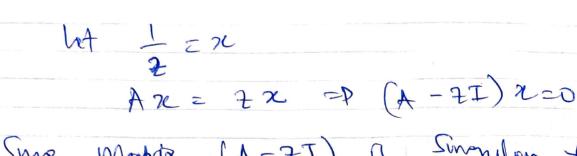
Brian KYANJO Home work MATH 566 2. Companion Matrix. P(2) = 22 + G 2 + Co and Show that P(2) 2 det (2I-A) for general Coefficients. P(2) = 22+ C12+ C0 $A = \begin{bmatrix} 0 & 1 \\ -co^{\dagger}c_{1} \end{bmatrix}$ Since the roots of P(2) Com be Comproted by solving for the edgen values of its companion moderix. Can Slow thout then, 2, so an ergon value of A with ergon rector (1) $= \begin{pmatrix} 2 \\ -20 - 42 \end{pmatrix}$ In the bust now of A (1) tooking H2120 $A\left(\frac{1}{7}\right) = \left(\frac{2}{7^2}\right) = 2\left(\frac{1}{7}\right)$ $A\left(\frac{1}{2}\right) = 2\left(\frac{1}{2}\right)$



Since Matrix (A-ZI) 13 Singular for an origin value Z, then the determinant of CA-ZI) is zero:

(a) Show how the Jordan normal forms can be used to some (2)

$$A = S_A \wedge_A S_A$$
 $A = S_B \wedge_B S_B$
 $A = S_B \wedge_B S_B$

SAT MA SAX - X SET M& SB = C

Introduce SA from the lift with

SASATIMASAX-SAXSBIMBSB = SAC MASAX-SAXSBIMBSB = SAC

Introduce So from the right MASAXSB - SAXSB NBSBSB = SAC SB 1 A SAXSE - SAXSE NB = SACSE table &= SACSB & = SAXSB MAX- X NB=E we have to Objain entres of 1/2, 1/2(1,5), and & = SAC. SE Where I've an edentity mostrix. therefore equation (1) becomes MAXI - MB(I) IX = SACSBI (MA - ABCJ, I) I) Xj = SAC Ski where $\hat{X}_j = S_A \times S_{Bj} = 0 \times = S_A^{-1} \hat{X} \times S_{Bj}$ the solution exists iff $\Lambda_A \neq \Lambda_B(J_i)$ I Home Xj= SA'X Ski I the Sourton to the Sylvestor Formation.