Row Reduce Ax = b. EAx = EbB: basic variables.  $A_{13}^{-1}A_{13}=A_{13}^{-1}b$  $\mathcal{M}ax \quad \mathcal{C}^{7}x \quad (A_{m\times n}, b \in \mathbb{R}^{m}, c \in \mathbb{R}^{n})$  $x \in \mathbb{R}^n$ S.t. Ax = bXZO · AB is invertible (XN=0, XB = AB'b). · AB b > 0. XB XN  $X_{B}$  I Q P =>  $P = A_{B}^{-1} D$ . -2  $O^{T}$   $\Gamma^{T}$  -2.

$$A^{\prime} = \begin{bmatrix} A_{\mathcal{B}} & A_{\mathcal{N}} \end{bmatrix}$$

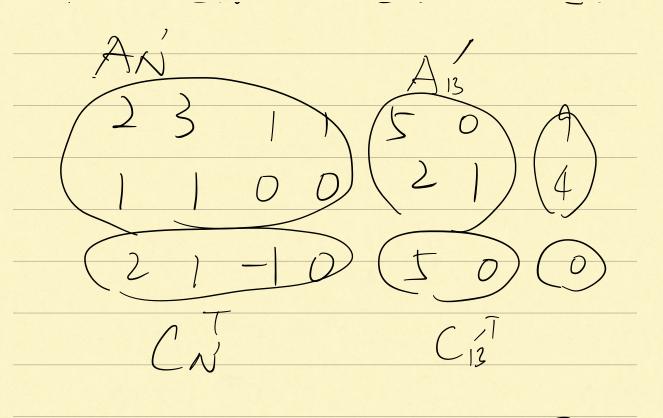
$$A^{\prime}_{\mathcal{B}} A^{\prime} = \begin{bmatrix} I & A^{-\prime}_{\mathcal{B}} A_{\mathcal{N}} \end{bmatrix} = \begin{bmatrix} I & Q \end{bmatrix}$$

$$Z_{\mathcal{D}} = C^{T}_{\mathcal{X}} = C^{T}_{\mathcal{B}} X_{\mathcal{B}} + C^{T}_{\mathcal{N}} X_{\mathcal{N}} \stackrel{(X_{\mathcal{W}} = \mathcal{O})}{=} C^{T}_{\mathcal{B}} X_{\mathcal{B}} = C^{T}_{\mathcal{B}} A^{T}_{\mathcal{B}} b = C^{T}_{\mathcal{B}} P.$$

lo eliminate costs below basic variables: bottom row: C'-CB (ABA') = [OT, IT]  $T^{T} = C_{N}' - C_{B}' (A_{B}' A_{N})$  $\Rightarrow$   $P = A\vec{b}'b$ ,  $Q = A\vec{b}'AN$  $f^{T} = C_{N}^{T} - C_{B}^{T} A_{B}^{-1} A_{N} = C_{N}^{T} - C_{B}^{T} Q$  $Z_o = C_B A_B b = C_B P$ X B XN \_\_\_\_ AB AN  $b = X_B I$ -2 OT CN-CB(ABAN) - CB (ABb) CB CN O AB is what we will compare. Revised Simplex method: For ope 1) Pricing: (Step determine entering variable) Compute entries of TT one by one until we find one with right sign. through non-basic variables N one by one

Until find reduced cost of right sign.

Use Bland's Pivoting rule: pick first  $Y_{j} = C_{j} - C_{b}^{T} A_{b}^{T} A_{j}$ . (jth in A, (j-|B|)<sup>th</sup> in I.)  $Q_{j} = (A_{b}^{T} A_{b})_{j} = A_{b}^{T} A_{j}$ 2th in  $X_{b}$  basic variable ratio I: I:



2	3		