SOLUZIONE COMPITO OTTIMIZZAZIONE DEL 5/9/2022

1) $x_i =$ "QUANTI CHILI COMPRO DI i?"

$$\min \sum_{i=1}^{n} x_i p_i$$

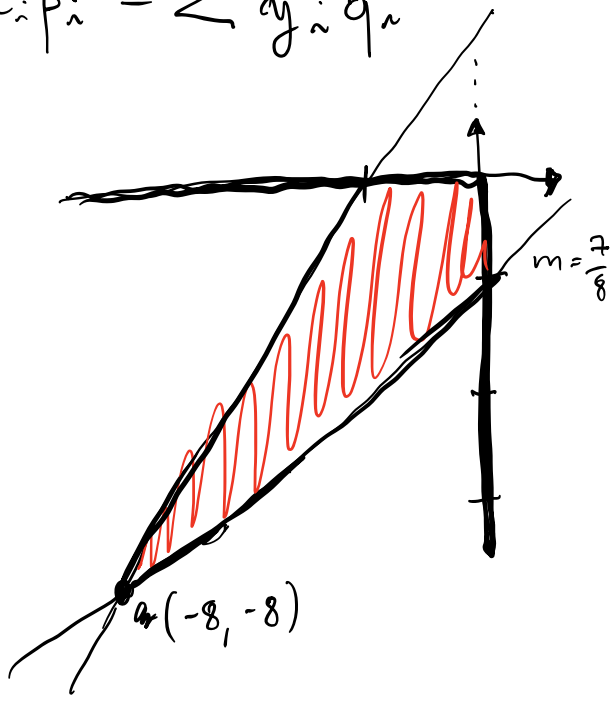
$$\sum_{i=1}^{n} x_i = k \qquad \sum x_i r_i \geq rk \qquad \sum x_i g_i \geq gk$$

$$\sum x_i s_i \leq sk$$

4) $x_i \geq y_i \cdot m_i \qquad y_i \in \{0,1\}$

$$\min \sum_{i=1}^{n} x_i p_i - \sum y_i q_i$$

2)



$$A = \begin{bmatrix} 1 & 0 \\ 7 & -8 \\ 0 & 1 \\ -8 & 7 \end{bmatrix} \qquad b = \begin{bmatrix} 0 \\ 8 \\ 0 \\ 8 \end{bmatrix} \qquad C = \begin{bmatrix} -1, -1 \end{bmatrix}$$

(I) $B = \{1,3\} \qquad A_B = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} = A_B^{-1}$

$\bar{x} = \begin{bmatrix} 0 \\ 0 \end{bmatrix}$ $h = 1$ $k = 4$

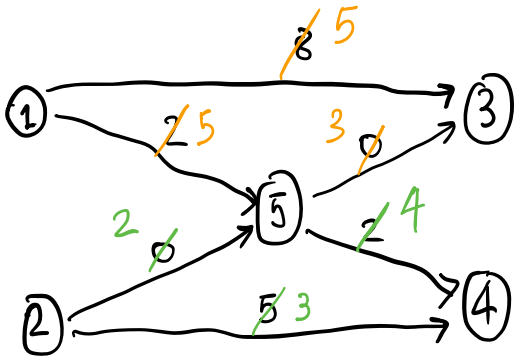
II) $B = \{3, 4\}$ $A_B = \begin{bmatrix} 0 & 1 \\ -8 & 7 \end{bmatrix}$ $A_B^{-1} = \begin{bmatrix} 7/8 & -1/8 \\ 1 & 0 \end{bmatrix}$

$\bar{x} = \begin{bmatrix} -1 \\ 0 \end{bmatrix}$ $h = 3$, $k = 2$

III) $B = \{2, 4\}$ $A_B = \begin{bmatrix} 7 & -8 \\ -8 & 7 \end{bmatrix}$ $A_B^{-1} = \begin{bmatrix} -1 & -8/7 \\ -8/7 & -1 \end{bmatrix}$

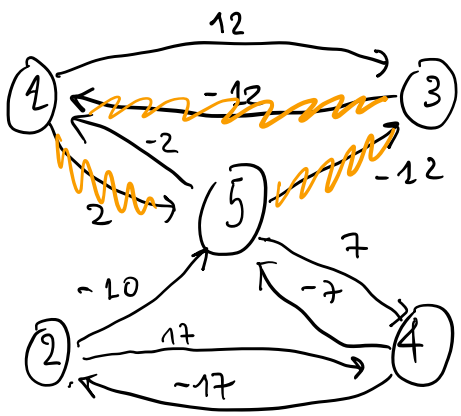
$\bar{x} = \begin{bmatrix} -8 \\ -8 \end{bmatrix}$

3) DOPO EK TROVIAMO

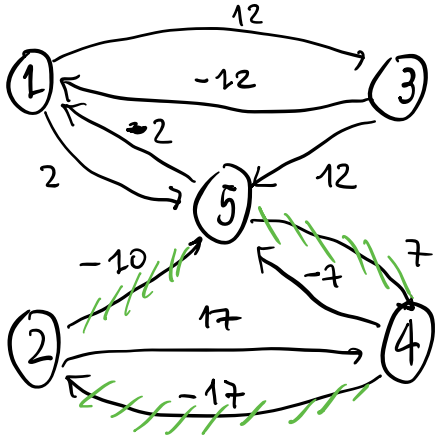


CHE È AMMISSIBILE. CERCHIAMO I CICLI DI COSTO NEGATIVO:

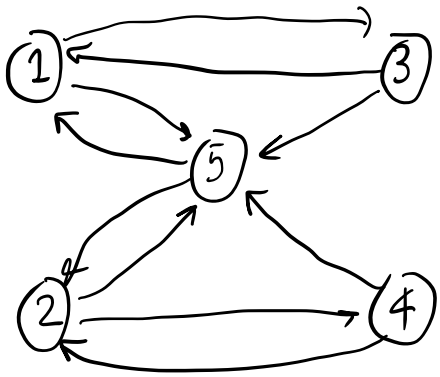
I)



II



III



NON CI SONO CICLI DI COSTO NEGATIVO.