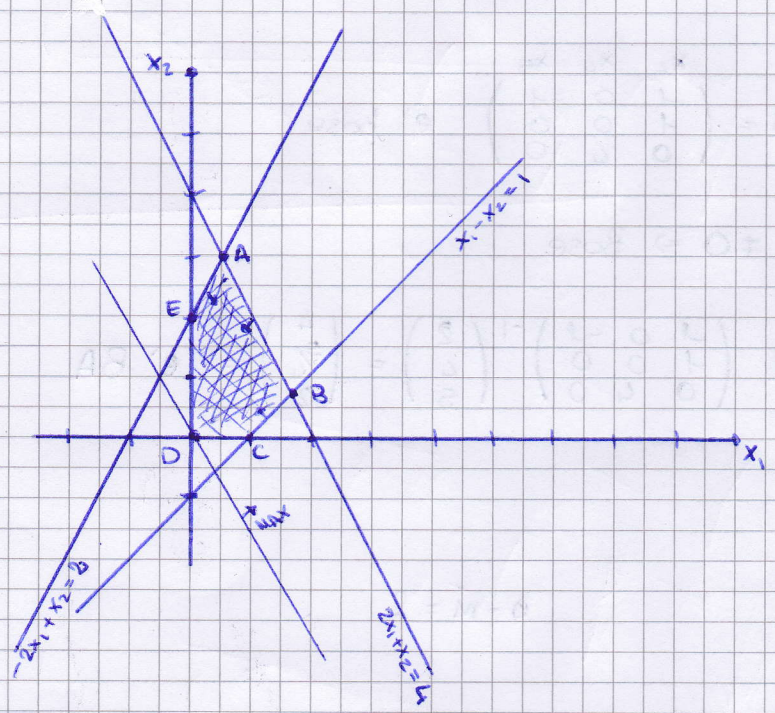
• Basi associate a vertici

$$\max \quad 3x_1 + 2x_2$$
$$2x_1 + x_2 \le 4$$
$$-2x_1 + x_2 \le 2$$
$$x_1 - x_2 \le 1$$
$$x_1, x_2 \ge 0$$

$\rightarrow$

$$\max \quad 3x_1 + 2x_2$$
$$2x_1 + x_2 + x_3 = 4$$
$$-2x_1 + x_2 + x_4 = 2$$
$$x_1 - x_2 + x_5 = 1$$
$$x_i \ge 0 \quad i = 1, \dots, 5$$

$$A = \begin{matrix} x_1 & x_2 & x_3 & x_4 & x_5 \end{matrix}$$
$$\begin{pmatrix} 2 & 1 & 1 & 0 & 0 \\ -2 & 1 & 0 & 1 & 0 \\ 1 & -1 & 0 & 0 & 1 \end{pmatrix}$$



$$A = \begin{cases} -2x_1 + x_2 = 2 \\ 2x_1 + x_2 = 4 \end{cases} \quad \begin{cases} x_2 - 4 + x_2 = 2 \\ 2x_1 = 4 - x_2 \end{cases} \quad \begin{cases} x_2 = 3 \\ x_1 = 1/2 \end{cases} \qquad A = (1/2 \;\; 3) \qquad z^*(A) = 15/2$$

• Basi associate ai vertici

$$A = (1/2 \;\; 3) \rightarrow \begin{cases} 1 + 3 + x_3 = 4 \\ -1 + 3 + x_4 = 2 \\ 1/2 - 3 + x_5 = 1 \end{cases} \rightarrow \begin{cases} x_3 = 0 \\ x_4 = 0 \\ x_5 = 7/2 \end{cases} \Rightarrow B_A = \begin{matrix} x_1 & x_2 & x_5 \end{matrix} \begin{pmatrix} 2 & 1 & 0 \\ -2 & 1 & 0 \\ 1 & -1 & 1 \end{pmatrix}$$

$$B = (5/3 \;\; 2/3) \rightarrow \begin{cases} 10/3 + 2/3 + x_3 = 4 \\ -10/3 + 2/3 + x_4 = 2 \\ 5/3 - 2/3 + x_5 = 1 \end{cases} \rightarrow \begin{cases} x_3 = 0 \\ x_4 = 14/3 \\ x_5 = 0 \end{cases} \Rightarrow B_B = \begin{matrix} x_1 & x_2 & x_4 \end{matrix} \begin{pmatrix} 2 & 1 & 0 \\ -2 & 1 & 1 \\ 1 & -1 & 0 \end{pmatrix}$$

$$C = (1 \;\; 0) \rightarrow \begin{cases} 2 + x_3 = 4 \\ -2 + x_4 = 2 \\ 1 + x_5 = 1 \end{cases} \rightarrow \begin{cases} x_3 = 2 \\ x_4 = 4 \\ x_5 = 0 \end{cases} \Rightarrow B_C = \begin{matrix} x_1 & x_3 & x_4 \end{matrix} \begin{pmatrix} 2 & 1 & 0 \\ -2 & 0 & 1 \\ 1 & 0 & 0 \end{pmatrix}$$

$$D = (0 \;\; 0) \rightarrow \begin{cases} x_3 = 4 \\ x_4 = 2 \\ x_5 = 1 \end{cases} \Rightarrow \Rightarrow B_D = \begin{matrix} x_3 & x_4 & x_5 \end{matrix} \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$$

$$E = (0 \;\; 2) \rightarrow \begin{cases} 2 + x_3 = 4 \\ 2 + x_4 = 2 \\ -2 + x_5 = 1 \end{cases} \rightarrow \begin{cases} x_3 = 2 \\ x_4 = 0 \\ x_5 = 3 \end{cases} \Rightarrow B_E = \begin{matrix} x_2 & x_3 & x_5 \end{matrix} \begin{pmatrix} 1 & 1 & 0 \\ 1 & 0 & 0 \\ -1 & 0 & 1 \end{pmatrix}$$