$Q = \{x \in \mathbb{R}^2 \mid Ax \leq b\}$, where $A = \begin{bmatrix} a_1^T \\ \vdots \\ a_m^T \end{bmatrix}$ & $b = \begin{bmatrix} b_1 \\ \vdots \\ b_m \end{bmatrix}$
$\in \mathbb{R}^{m\times 2}$ $\qquad \in \mathbb{R}^m$

Therefore our polygon will be defind by m equations of the form:

$\boxed{a_1^T \cdot x \leq b_1}$ (for the 1st entry)

$\hookrightarrow a_{11} \cdot x_1 + a_{12} \cdot x_2 \leq b_1 \Leftrightarrow x_2 \leq -\frac{a_{11}}{a_{12}} \cdot x_1 + \frac{b_1}{a_{12}}$

$B = \{x \in \mathbb{R}^2 \mid \|x - c\| \leq r\}$

The liniar problem that needs to be solved is:

$$\begin{aligned} &\max r \\ &\text{such that} \Rightarrow c + \frac{a_i}{\|a_i\|_2} \cdot r = x \Leftrightarrow \\ &Ax \leq b \end{aligned}$$

$$\Leftrightarrow a_i^T \cdot x \leq b_i \Leftrightarrow$$

$$\Leftrightarrow a_i^T \left(c + \frac{a_i}{\|a_i\|_2} r\right) \leq b_i \Rightarrow \boxed{a_i^T \cdot c + \|a_i\|_2 r \leq b_i} \Rightarrow$$

$\Rightarrow$ A_ub is : $\begin{bmatrix} a_1^T & \|a_1\|_2 \\ \vdots & \\ a_m^T & \|a_m\|_2 \end{bmatrix}$ and b_ub $= b = \begin{bmatrix} b_1 \\ \vdots \\ b_m \end{bmatrix}$

and c is : $[-1, 0, 0]$.

$\hookrightarrow$ this values we fed to the linprog func.