等式约束优化 $$\min \{f(\boldsymbol{x}) \mid c_i(\boldsymbol{x}) = 0, i \in \mathcal{E}\}$$

外点罚函数 $$P(\boldsymbol{x}, \pi) = \boxed{f(\boldsymbol{x})} + \pi \sum_{i \in \mathcal{E}} c_i^2(\boldsymbol{x})$$

乘子罚函数 $$P(\boldsymbol{x}, \boldsymbol{\lambda}, \pi) = \boxed{f(\boldsymbol{x}) - \sum_{i \in \mathcal{E}} \lambda_i c_i(\boldsymbol{x})} + \pi \sum_{i \in \mathcal{E}} c_i^2(\boldsymbol{x})$$