第 12 章作业参考答案(1)

P392/1：$\overline{x} \in S$

（1）$D(S, \overline{x}) = \{ \boldsymbol{d} = (d_1, \cdots, d_n)^T \mid A\boldsymbol{d} = 0, d_j \geq 0, \forall j : \overline{x}_j = 0 \}$

（2）$D(S, \overline{x}) = \{ \boldsymbol{d} = (d_1, \cdots, d_n)^T \mid A_1\boldsymbol{d} \leq 0, E\boldsymbol{d} = 0, d_j \geq 0, \forall j : \overline{x}_j = 0 \}$，其中 A_1 满足

$$A = \begin{pmatrix} A_1 \\ A_2 \end{pmatrix}, \boldsymbol{b} = \begin{pmatrix} \boldsymbol{b}^1 \\ \boldsymbol{b}^2 \end{pmatrix} : A_1\overline{x} = \boldsymbol{b}^1, A_2\overline{x} < \boldsymbol{b}^2$$

（3）（2）$D(S, \overline{x}) = \{ \boldsymbol{d} = (d_1, \cdots, d_n)^T \mid A_1\boldsymbol{d} \geq 0, d_j \geq 0, \forall j : \overline{x}_j = 0 \}$，其中 A_1 满足

$$A = \begin{pmatrix} A_1 \\ A_2 \end{pmatrix}, \boldsymbol{b} = \begin{pmatrix} \boldsymbol{b}^1 \\ \boldsymbol{b}^2 \end{pmatrix} : A_1\overline{x} = \boldsymbol{b}^1, A_2\overline{x} < \boldsymbol{b}^2$$