1、

$$\min_{x \in \mathbb{R}^n} \tfrac{1}{2}x^TQx + c^Tx$$

$$\text{s.t.} \quad Ax = b$$

$$L(x,v) = \tfrac{1}{2}x^TQx + c^Tx + v^T(Ax-b)$$
$$= \tfrac{1}{2}x^TQx + c^Tx + v^TAx - v^Tb$$

$$\frac{\partial L(x,v)}{\partial x} = Qx + c + A^Tv = 0 \implies Qx + A^Tv = -c$$

$$\frac{\partial L(x,v)}{\partial v} = Ax - b = 0 \implies Ax = b$$

$$\begin{bmatrix} Q & A^T \\ A & 0 \end{bmatrix}\begin{bmatrix} x^* \\ v^* \end{bmatrix} = \begin{bmatrix} -c \\ b \end{bmatrix}$$