

# DCP and CVX

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## CVX and DCP

$$\begin{bmatrix} \cancel{1} & 2 \\ 3 & \cancel{4} \end{bmatrix} \quad \boxed{Ax = b}$$

$$X \rightarrow \text{vec}(X)$$

$$X \begin{bmatrix} 0, 1 \end{bmatrix} = 2 = x_{12}$$

$$X \begin{bmatrix} 1, 0 \end{bmatrix} = 3 = x_{21}$$

$$\underbrace{\begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}}_A \quad \begin{bmatrix} x_{11} \\ x_{12} \\ x_{21} \\ x_{22} \end{bmatrix} = \begin{bmatrix} 2 \\ 3 \end{bmatrix}$$

$$\begin{array}{ll} \min & f(x) \\ \text{s.t.} & Ax = b \\ & h_j(x) \leq 0 \end{array}$$