

## Example

Step 3: convert back to the old coordinates.

$$\begin{aligned}u &= -\bar{K}\bar{x} \\ &= -\underbrace{\bar{K}T}_K x\end{aligned}$$

— therefore,

$$\begin{aligned}K &= \bar{K}T \\ &= (86 \quad 12) \begin{pmatrix} 1 & -1 \\ 0 & 1 \end{pmatrix} \\ &= (86 \quad -74)\end{aligned}$$

The desired state feedback law is

$$u = (-86 \quad 74) \begin{pmatrix} x_1 \\ x_2 \end{pmatrix}$$