Algorithm Design

- **Example Equivalent R1CS**
  - $A = \begin{pmatrix} 0 & 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 1 & 0 & 0 & 1 & 0 \\ 5 & 0 & 0 & 0 & 0 & 1 \end{pmatrix} \mathrm{B} = \begin{pmatrix} 0 & 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 \\ 1 & 0 & 0 & 0 & 0 & 0 \\ 1 & 0 & 0 & 0 & 0 & 0 \end{pmatrix} \mathrm{C} = \begin{pmatrix} 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 & 0 & 0 \end{pmatrix}$

    $\text{Variable mapping} = (\sim\text{one}, \mathrm{x}, , \sim\text{out}, \mathrm{x}^2, \mathrm{x}^3, \text{sym}_1)$
  - $A = \begin{pmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix} A = \begin{pmatrix} 0 & 1 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{pmatrix} A = \begin{pmatrix} 0 & 0 & 0 & 1 \\ -5 & -1 & 1 & 0 \end{pmatrix}$

    $\text{Variable mapping} = (\sim\text{one}, \mathrm{x}, , \sim\text{out}, \mathrm{x}^2)$