

14/

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Assignment 14

14.1

- ① $2x_1 + x_2 + 2x_3 \geq 6$
 - ② $2x_1 + x_2 - x_3 \leq 3$
 - ③ $x_1 + 2x_2 + x_3 \approx 6$
 - ④ $x_3 - x_1 > 0 \vee x_2 - x_3 < 1$
- $x_1 = 6 - 2x_2 - x_3$

$$\begin{array}{l|l} \textcircled{1} & \textcircled{2} \\ 12 - 4x_2 - 2x_3 + x_2 + 2x_3 \geq 6 & 12 - 4x_2 - 2x_3 + x_2 \\ 6 - 3x_2 \geq 0 & -x_3 \leq 3 \\ & \Rightarrow -3x_2 - 3x_3 \leq 3 \\ & \Rightarrow x_2 + x_3 \geq 3 \end{array}$$

$$\textcircled{4} \quad x_3 - 6 + 2x_2 + x_3 > 0 \vee x_2 - x_3 < 1$$

$$\Rightarrow x_2 + x_3 > 3 \vee x_2 - x_3 < 1$$

Let

$$\begin{array}{ll} P: 6 - 3x_2 \geq 0 & Q: x_2 + x_3 > 3 \\ R: x_2 + x_3 > 3 & S: x_2 - x_3 < 1 \end{array}$$

$$\begin{array}{l} \text{Propa.} \\ \Rightarrow (P^P, Q^Q, N, \emptyset, 0, T) \\ \text{Decide} \\ \Rightarrow (P^P, Q^Q, R^1, N, \emptyset, 1, T) \end{array}$$

$$\{x \mid P: 6 - 3x_2 \geq 0\}$$

$$\Rightarrow x_2 \leq 2$$

$$\{x_2 < 2\} \cup \{x_2 > 3 - x_3, x_2 > 3 - 3x_3\}$$

$$\begin{array}{ll} (PR) \Rightarrow 2 > 3 - 3x_3 & (PQ) \Rightarrow 2 > 3 - 3x_3 \\ \Rightarrow x_3 > 1 & x_3 > 1 \end{array} \quad [T \text{ Success}]$$