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Lecture

Lecture questions due Sep 27, 2016 at 19:30 IST

**Recitation****Problem Set 3**

Homework 3 due Sep 27, 2016 at 19:30 IST



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Nonlinear to Integer Exercise

(1/1 point)

Consider the nonlinear constraint $y = x_1 x_2$, for $x_1, x_2 \in \{0, 1\}$

Which of the following can together be used to transform the above constraint into linear constraints? You will need to select three of the constraints. (Assume that $y \in [0, 1]$)

☒ $y \leq x_1$ ✓☐ $y \geq x_1$ ☒ $y \leq x_2$ ✓☐ $y \geq x_2$ ☒ $y \geq x_1 + x_2 - 1$ ✓☐ $y \leq x_1 + x_2 - 1$

☐ $y = x_1 + x_2 - 1$

**SOLUTION**

- $y \leq x_1$. If $x_1 = 0$, then $y \leq 0$.
- $y \leq x_2$. If $x_2 = 0$, then $y \leq 0$.
- $y \geq x_1 + x_2 - 1$. If $x_1 = x_2 = 1$, then $y \geq 1$.

This enforces

$$y = x_1 x_2, x_1, x_2 \in \{0, 1\}$$

You have used 1 of 2 submissions

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