

MITx: 15.053x Optimization Methods in Business Analytics

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Lecture

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

Recitation

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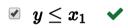
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Nonlinear to Integer Exercise

(1/1 point)

Consider the nonlinear constraint $y=x_1x_2, \ ext{for} \ x_1, x_2 \in \{0,1\}$

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 $y \in [0,1]$)





$$vert y \leq x_2$$

 $\quad \square \quad y \geq x_2$

$$extstyle y \geq x_1 + x_2 - 1 extstyle extst$$

 $\quad \quad \square \quad y \leq x_1 + x_2 - 1$



SOLUTION

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

This enforces

$$y=x_1x_2,\ x_1,x_2\in\{0,1\}$$

You have used 1 of 2 submissions

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