



MITx: 15.053x Optimization Methods in Business Analytics



Bookmarks

▸ General Information

▸ Week 1

▸ Week 2

▼ Week 3

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



Week 3 > Lecture > OR2 Exercise

Bookmark

"OR2" Exercise

(1/1 point)

Consider decision variables x_1, x_2 and a binary variable w_1 .Add two constraints and a binary variable w_1 , that ensure the following: $x_1 + x_2 \geq 70$ or $x_1 + x_2 \leq 60$. Select the two constraints below.

☒ $x_1 + x_2 \geq 70 - M(1 - w_1)$ ✓

☐ $x_1 + x_2 \geq 70 + M(1 - w_1)$

☒ $x_1 + x_2 \leq 60 + Mw_1$ ✓

☐ $x_1 + x_2 \leq 60 - Mw_1$

**SOLUTION**

- $x_1 + x_2 \geq 70 - M(1 - w_1)$.

- $x_1 + x_2 \leq 60 + Mw_1$.

The constraint $x_1 + x_2 \geq 70 + M(1 - w_1)$ would lead to an infeasible problem whenever $w_1 = 0$. The constraint $x_1 + x_2 \leq 60 - Mw_1$ would lead to an infeasible problem whenever $w_1 = 1$.

You have used 1 of 2 submissions

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