edX | **MITx:** 15.053x Optimization Methods in Business Analytics

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

Recitation

Problem Set 3
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Knapsack Exercise

 (1/1 point)

Consider the knapsack problem, in which a subset of items are selected from a set of n items so as to maximize an objective. Suppose the integrality constraints are relaxed. (That is, the variables are permitted to be fractional.)

Which of the following would be the outcome?

- ⦿ The optimal objective value increases or remains the same.   ✔

- ○ The optimal objective value decreases or remains the same.

- ○ The optimal objective value remains the same.

- ○ The optimal objective value strictly increases.

- ○ The optimal objective value strictly decreases.

SOLUTION
When the integrality constrains are relaxed, the feasible region gets larger. The optimal objective value won't get worse. It can stay the same or get better. In this case, the optimal objective value increases or remains the same.

You have used 1 of 2 submissions