



Bookmarks

▸ General Information

▸ Week 1

▸ Week 2

▸ Week 3

▸ Week 4

▸ Week 5

▼ Week 6

**Lecture**

Lecture questions due Oct 18, 2016 at 19:30 IST

**Recitation****Problem Set 6**

Homework 6 due Oct 18, 2016 at 19:30 IST



Week 6 &gt; Problem Set 6 &gt; Problem 2

## Problem 2

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### Problem 2

1/1 point (graded)

Consider the Hock-Schittkowski problem, which is defined as follows:

- Decision variables:  $x_1, x_2, x_3, x_4$
- Objective value:  $z$

Formulation:

$$\left. \begin{array}{ll} \min & z = x_1 x_4 (x_1 + x_2 + x_3) + x_3 \\ \text{s.t.:} & \\ (1) & x_1 x_2 x_3 x_4 \geq 25 \\ (2) & x_1^2 + x_2^2 + x_3^2 + x_4^2 = 40 \\ (3) & 1 \leq x_1, x_2, x_3, x_4 \leq 5 \end{array} \right\}$$

What is the (rounded) optimal solution?

- ☐  $x_1 = 1.00, x_2 = 4.74, x_3 = 0, x_4 = 1.00$   
 $z = 5.74$

► Exit Survey

☐  $x_1 = 1.00, x_2 = 0, x_3 = 0, x_4 = 1.38$   
 $z = 1.38$

☐  $x_1 = 0, x_2 = 0, x_3 = 3.82, x_4 = 1.38 = 0$   
 $z = 3.82$

☐  $x_1 = 1.00, x_2 = 3.82, x_3 = 4.74, x_4 = 1.38$   
 $z = 17.93$

☒  $x_1 = 1.00, x_2 = 4.74, x_3 = 3.82, x_4 = 1.38$   
 $z = 17.01$



[1] W. Hock, K. Schittkowski, Test Examples for Nonlinear Programming Codes, Lecture Notes in Economics and Mathematical Systems, Springer, No, 187, 1981.

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You have used 1 of 2 attempts

✓ Correct (1/1 point)

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