Problem 2

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:

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

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.

Submit You have used 1 of 2 attempts

✔ Correct (1/1 point)