Sum of Two Partitions (15 numbers)

(1/1 point)
Now we repeat the exercise with 15 integers

Suppose we have $(I_1, I_2, \ldots, I_{15}) \in [200000, 1000000]$

Using Differences.xlsx (*Google sheets version available here*), we wish to minimize the difference in sums between the two partitions. In Differences.xlsx, the optimum solution for this problem is given on the tab/sheet titled "Opt 15 Variables". Based on this sheet, answer the following question.

Which of the following is the sum of the 15 integers?

- $907,670$
- $679,097$
- $90,097,670$
- $6,709,097$

◉ $9,097,670$ ✔

You have used 1 of 1 submissions

Minimizing the Difference (15 numbers)

Finding the Minimum Difference of Sums

Suppose the optimal parts of the partition are denoted as S_1, S_2.

What is $\left|\sum_{j \in S_1} I_j - \sum_{j \in S_2} I_j\right|$?

Note that the partition already in the sheet is not necessaily the optimal one. To find the correct answer, you will need to use Excel Solver or preferably OpenSolver. (You can skip this exercise for now if neither is installed.) If you use Solver, then select solver, click on "options" in the dialogue box, and set the value of "Integer Optimality(%)" to .0001. The default is 1, which permits the solutions provided by Solver for integer programs to be 1% from optimal.

68 ✔

68

correct: Very impressive

You have used 1 of 2 submissions

Sum of Two Partitions (25 numbers)

(1/1 point)

Now we repeat the exercise with 25 integers. As one would expect, this makes the problem more difficult. You will observe in the next part that solvers take more time to output the optimal partition.

Suppose we have $(I_1, I_2, \ldots, I_{15}) \in [200000, 1000000]$

Using "Opt 25 Var" in Differences.xlsx (*Google sheets version available here*), we wish to minimize the difference in sums between the two partitions

Which of the following is the sum of the 25 integers?

- $6,257,235$
- $257,235$
- $9,097,670$
- $160,257,235$
- $16,257,235$ ✔

You have used 1 of 1 submissions

Minimizing the Difference (25 numbers)

Finding the Minimum Difference of Sums

Suppose the optimal parts of the partition are denoted as S_1, S_2.

What is $\left|\sum_{j \in S_1} I_j - \sum_{j \in S_2} I_j\right|$?

Note that the partition already in the sheet is not necessaily the optimal one. To find the correct answer, you will need to use Excel Solver or preferably OpenSolver. (You can skip this exercise if neither is installed.)

3 ✖

3

You have used 2 of 2 submissions