

מחשוב מקבילי ומבוזר

תרגיל כיתה #2

The purpose of this exercise is to familiarize
with Point-to-Point and Collective communications

Problem definition:

Start N processes. Process with rank 2 creates an array A of size $N \times K$. The purpose is to find the sum of this array.

Perform this task as follows:

1. Rank 2 sends chunks of size K to each process. It will manage one of chunks by itself as well.
2. Each process calculates a sum of all elements of the chunk it received.
3. Each process sends its result to rank 2.
4. Rank 2 finds a sum of all results and sends the total sum to all processes.
5. Each process displays its rank and the total sum.

Requirements:

Develop two solutions:

1. The first solution will use only Poin-to-Point communication functions `MPI_Send/MPI_Recv`.
2. The second solution will use Collective Communication function – `MPI_Bcast`, `MPI_Scatter`, `MPI_Gather`, `MPI_Reduce`.

בהצלחה