CALCULATE AREA UNDER THE CURVE USING PTHREADS

Harshvardhan Agrawal (hka25)
Chirag Jain (csj43)

(Makefile is given to run the code).
Steps to Parallelize the implementation of area calculation:

- In order to parallelise the code, we need to break the data into chunks on which a respective thread will perform computation.
- Create a structure that holds the thread_id, start index for the chunk of data of respective thread, the end index for chunk of data of the respective thread, height of the trapeziums in the chunk of the respective thread.
- We also declare an array that stores local areas calculated by each thread.
- We will sum the local areas and store in a variable called final_area.
- When we deploy the threads we compute the local areas of each thread.
- After computing the local areas we sum them up to calculate final_area.

Number of Threads	Serial Time (s)	Parallel Time (s)	Speedup
2	5.21	3.47	1.51
4	5.21	1.75	2.98
8	5.27	0.89	5.93
16	5.23	0.66	7.93