Matthew Hatami - Assignment 4

Here is how I have solved the problem:

- First I have defined the channel properties and the initial condition according to the problem
- Then I have defined two numpy arrays containing the initial condition from the table for the depths and velocities at a specific time.

I have defined 3 different functions as explained below:

- `Calculate_area`: I used the trapezoidal formula to compute the cross-sectional area
- `Calculate_time_step`: I used CFL condition to determine the maximum stable time step and used a coefficient of 0.8 for maximum stability
- `Lax_diffusive_scheme`: I update the water depth and velocity in each loop using finite difference approximations for the continuity and momentum equations in this function

Then I print the results for the sections asked in the question.