Simulate a solar water heater as in the homework (5cm walls, 1 meter cube, widow on top), have the program graph temperature versus time. Start the simulation at noon with an initial water temperature of 30 degrees. The temperature outside the box at 15 degrees. By inspecting the graph decide how long it takes to heat the water to 50 degrees.

Extra Credit: You will get credit for this only if the above is correct. Make a new version of the code that simulates a smart window. The window covers itself when the power coming in the window is less than power it is losing through conduction. When it is covered it has the same U-factor as the walls. How long does it take to reach 50 degrees now?

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