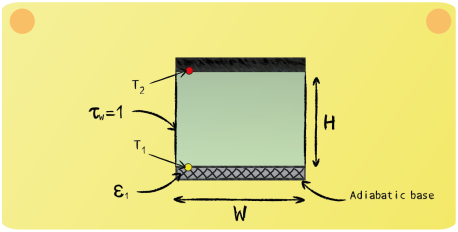
Energy Balance - Radiation - Outer 2

A terrarium (base area $W \cdot L$) with transparent walls is being heated by a radiating top cover. The cover can be assumed to behave like a black body radiator with a homogeneous temperature T_2. The base surface is grey and adiabatic. Neglect convective heat transfer effect and ambient influence. Setup the outer energy balance of the base.
Hint:
Assume steady-state heat transfer and the view factors to be known.



Energy balance:

$$\dot{Q}_{21} - \dot{Q}_{1\epsilon} = 0$$

Heat fluxes:

$$\dot{Q}_{21} = \Phi_{21} \cdot \sigma \cdot W \cdot L \cdot T_2^4$$

$$\dot{Q}_{1\epsilon} = \sigma \cdot W \cdot L \cdot T_1^4$$

Spectral properties:

$$\epsilon_1 = 1$$