

Problem #1 Self grading:

(1) (a) 8 resistances - 0.375/1, i listed 3 out of 8.

(b) Q from sun to correct node - 0.5/1, i attempted the equation but i there was a flaw. * $\left[\dot{Q}_{in} = \frac{T_p - T_{avg}}{R_w} + \frac{T_p - T_{oc}}{R_t} \right]$
 $\frac{Q_{solar}}{R_a} + \frac{T_{env} - T_p}{R_a} + \frac{T_a - T_p}{R_w}$ correct

(2)

(a) correct areas in convect resistance - 0.3/1 - i attempted to include area in my resistance calculations * noted in original test markup.

(b) shape factor justification - 0/1, this was not included or considered.

(c) glass & tube resistance equations - 0/1, i did not include conduction equation, i only considered the convective & resistance terms.

(d) absorber resistance is negligible - 0/1, i did not prove this in my calculations.

(3) Conservation of energy equation - 0.9/1, i included this, but values are incorrect, see bracketed note on markup.

(4) Solving for absorber temperature - 1/1, using energy equ. i solved for T_p

(5) Q to water - 0.7/1 - i set up the Q equation but values incorrect. noted in markup.