1. **the convective heat transfer and explanation of why increasing the thickness of a single pane glass does not increase the total resistance**

   the convection is a kind of heat transfer which is consist of two different type, the warm weather goes up and the cold weather goes down and also there is forced convection which depends on temperature of liquid or gas, velocity of liquid or gas, kind of liquid or gas (material)

   The thickness of single panel of glass affect the total resistance but this affect is not evident based on total resistance formula its affect is less than other criteria that effect on total resistance.

2. **Mistakes During Class:**

   In the last question I should calculate resistance of glass for two times but I just calculate it one time.

3. **why we have an optimal range for the air-gap's distance?**

   Based on resistance and gap distance chart when the gap increase from 0 mm to 13 mm the resistance is increased but after that will be changed after this period that means after this periode we loose resistane.

4. **Solve the same problem as that of double pane window with with the air-gap thickness of 13 mm and glass thickness of 6 mm.**

$R_{total}=R_{conv1}+R_{glass1}+R_{air}+R_{glass2}+R_{conv1}$

$(1/10*(0.8*1.5))+(0.006/0.78(0.8*1.5))+(0.013/0.026(0.8*1.5))+(1/40(0.8*1.5))=0.5335$

$\dot{Q}=\Delta T/R=56.23$

$\dot{Q}=T\infty 1-T1/Rconv1$

T1=15.3 C