Task 1 :In your own words (which means in your own words) write a summary of the topics about radiative heat transfer we went through including the definitions of emissivity, absorptivity and reflectivity, the view factor, the heat exchange between two black surfaces,the heat exchange between the two gray surface and finally the definition of radiative resistances.

Emissivity: The amount of energy that a material or object can transfer through the radiation .it could be blackbody which has the highest amount (around 1.0) or gray which has the minimum amount.

Absorptivity: The amount of energy that an object or material can absorb after contacting with outer energy. In other word the amount of energy that a material can save in itself after contacting with emitted energy from another object.

Reflectivity: The amount of energy that an object can reflect after contacting with outer energy for example from blackbody.

The view factor: the fraction of radiant energy that leaving from one surface which strikes the second surface directly.

The heat exchange between two black surfaces:

In this transmission, the radiation falling on a black surface is completely absorbed and none of it is reflected.

The heat exchange between the two gray surface:

In this transmission, the gray surfaces can absorb a certain amount of radiant energy which is transferred between them and also can reflected a portion of radiation energy to the space.

The definition of radiative resistances:
is the net heat exchange from surface I with environmental.

Task 2 Solve the last example you solved in the class (radiative heat exchange between two parallel plates) awhile considering the two emissivities to be 0.1, what can you conclude from the result?

$$Qnet_{1-2} = \frac{A \times \sigma \times (T_1^4 - T_2^4)}{\frac{1}{\varepsilon_1} + \frac{1}{\varepsilon_2} - 1}$$

$$\dot{Q}_{1-2} = \frac{5.67 \times 10^{-8} \times (800^4 - 500^4)}{1/0{,}2 + 1/0{,}7 - 1} = \frac{5{,}67 \times 10^{-8} \times (4096 \times 10^8 - 625 \times 10^8)}{5{,}43} =$$

$$\dot{Q}_{1-2} = 3624{,}41 \ \text{W/m}^2$$

$\varepsilon_1 = 0{,}1$, $\varepsilon_2 = 0{,}1$ $T_1 = 800\ \text{K}$, $T_2 = 500\ \text{k}$

$\sigma = 5{,}67 \times 10^{-8}\ \text{W/m}^2$

$$\dot{Q}_{1-2} = \frac{5{,}67 \times 10^{-8} \times (800^4 - 500^4)}{1/0{,}1 + 1/0{,}1 - 1} = \frac{5{,}67 \times 10^{-8} \times (4096 \times 10^8 - 625 \times 10^8)}{19} =$$

$$\dot{Q}_{1-2} = \frac{19680{,}57}{19} = 1035{,}81\ \text{W/m}^2$$

Conclution = the amount of the emissivity is related to the radiation heat transfer between two surfaces.

if the emissivity is increased the radiation heat transfer is increased significantly.