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

Emissivity is defined as the ratio of the energy radiated from a material's surface to that radiated from a perfect emitter, known as a blackbody, at the same temperature and wavelength and under the same viewing conditions. It is a dimensionless number between 0 and 1

-Absorptivity

Absorptivity refers to the ratio of the absorbed heat to the total energy of the projected heat onto the object. The object that can absorb all the rays is a black body, and its absorption rate is 1. The absorption rate of the actual object is less than 1, depending on the material, roughness and temperature of the surface of the object and is related to the wavelength range and angle of incidence of the received heat rays.

-Reflectivity

The amount of radiant energy reflected by an object as a percentage of the total radiant energy is called reflectivity.

The reflectivity of different objects is also different, which mainly depends on the nature of the object itself (surface condition), as well as the wavelength of incident electromagnetic wave and incident Angle. The range of reflectivity is always less than or equal to 1, and the reflectivity can be used to judge the nature of the object

-View factor

It is the emission generated at certain object and received by other object. It does not depend on the surface properties. $Ai \times Fij = Af \times Fji$

The reciprocity law defines the relation between two surfaces, the area and the view factor produced by each one of them.

- Radiation heat transfer, black surfaces

The heat exchange between two black surfaces refers to the process in which one black surface emits radiation to another black surface and is completely absorbed, while the other black surface also emits radiation and is also completely absorbed by the first black surface.

-Radiation heat transfer, grey surfaces:

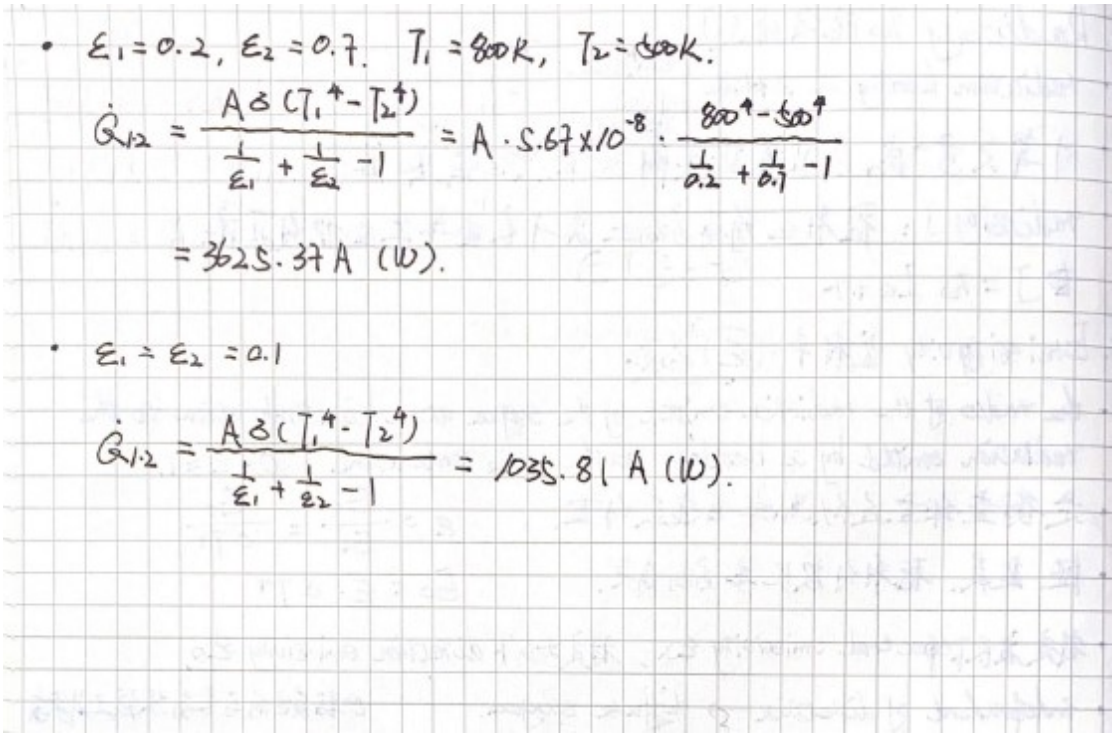
Grey surfaces are not like black bodies, which absorb all the radiation. In grey surfaces we talk about radiosity, that is the sum between reflected radiation and emitted radiation by the body. As it is already known, emitted radiation is a ratio of the emissive power of a black body that can be expressed as ϵEb and the reflected radiation is $piGi$.

To find the heat transfer of a grey surface it is necessary to subtract the radiation leaving the entire surface and the radiation incident in the entire surface.

-Radiative resistance:

It is the resistance of a particular medium or system to the flow of heat through its boundaries and is dependent upon geometry and thermal properties of the medium such as thermal conductivity.

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



The emissivity of the surface is important for the radiative heat exchange. In the first case, we have two surfaces with higher emissivity so the heat exchange between them is higher. When the emissivity become lower, the heat exchange is lower much