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Task 1: Summary about radiative heat transfer, including emissivity, absorptivity and reflectivity, the view factor, the heat exchange between two black surfaces, the heat exchange between the two gray surface and the definition of radiative resistances.

- Emissivity is the proportion of thermic radiation emitted by a surface or an object thanks to it temperature. Is also a measure of how closely a suface approximates a blackbody.

  $\epsilon = \frac{E_{theRealOne}}{E_{blaclBody@thatTemperature}} = \frac{E_{theRealOne}}{\sigma T^4} \rightarrow$
  $E_{theRealOne} = \epsilon \times \sigma T^4$

- Absorptivity is when the radiation goes through a semitransparent material and it stays in the material. The ecuation to get it is **α** = $\frac{absorbed\ radiation}{Incident\ radiation} = \frac{G\ abs}{G}$ $0 < \alpha < 1$

- Reflexivity is when the radiation goes in direction to a semitransparent material and it bounds over it.
  p = $\frac{reflected\ radiation}{Incident\ radiation} = \frac{G\ ref}{G}$ $0 < p < 1$

  The view factor F (also called shape factor) is quantity in a geometrical shape corresponding to the fraction of the radiation leaving surface i that is intercepted by the surface j
  $f\ 12 = \frac{\dot{Q}\ emitted\ by\ \ surface1\ and\ received\ in\ surface2}{\dot{Q}\ emitted\ by\ \ surface1}$

- Radiation Heat transfer: Black Surfaces
  The radiation heat transfer from one black surface to an other is defined by the multiplication of the area, is $\sigma\ T^4$

- Radiation Heat transfer: Diffuse gray Surfaces
  Grey bodies aren´t as black bodies, they don´t absorb all the radiation. In these surfaces radiation is reflected and emitted by the body.

- Radiative resistance is defined by this ecuation:

  $Ri = \frac{1-Ei}{Ai\ Ei}$

Task 2: Radiative heat exchange between two parallel plates

$$Q12 = \frac{A\sigma\ (T^4 1 - T^4 2)}{\frac{1}{E1} + \frac{1}{E2} - 1} = \qquad \frac{Q12}{A} = \frac{5.67\ x\ 10^{-8}\ (800^4 - 500^4)}{\frac{1}{0.2} + \frac{1}{0.7} - 1} = 3625.36 \frac{W}{m2}$$

$$Q12 = \frac{A\sigma\ (T^4 1 - T^4 2)}{\frac{1}{E1} + \frac{1}{E2} - 1} = \qquad \frac{Q12}{A} = \frac{5.67\ x\ 10^{-8}\ (800^4 - 500^4)}{\frac{1}{0.1} + \frac{1}{0.1} - 1} = 1035.81 \frac{W}{m2}$$

The heat exchage is lower in the second case.