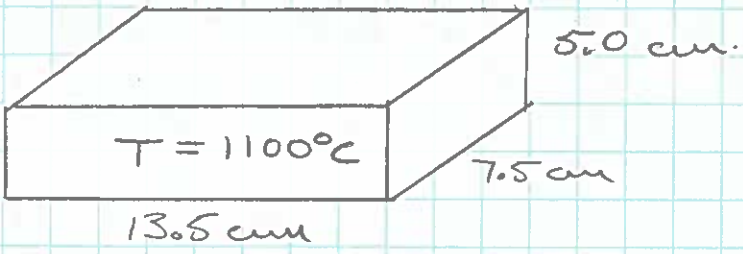
Shuttle Tile:



Environment
$T_0 = 20°C$

$$\frac{Q_{net}}{\Delta t} = e\sigma A(T^4 - T_0^4)$$

A = total radiating surface

$$= 2(13.5 \times 5.0) + 2(13.5 \times 7.5) + 2(7.5 \times 5.0)\ cm^2$$

$$= 412.5\ cm^2 \left(\frac{1\ m}{100\ cm}\right)^2 = 0.04125\ m^2$$

$T = 1100°C = 1373K$

$T_0 = 20° = 293K$

$e = 1.0$ & $\sigma = 5.67 \times 10^{-8} \frac{W}{m^2 K^4}$

So: $\frac{Q_{net}}{\Delta t} = 8294$ Watts

Most of this radiation is in the infared part of the EM spectrum.