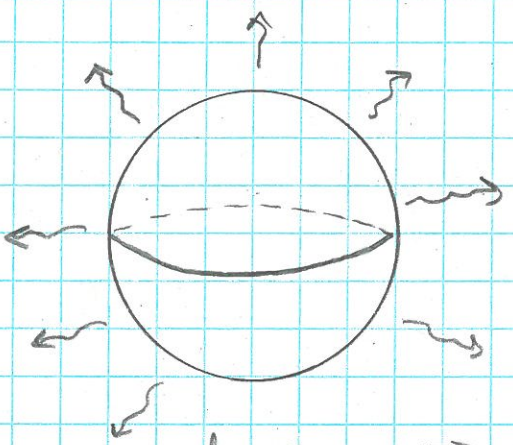

$\lambda_{max} = 2\mu m$

$= 2000\,nm$

$d = 2\,cm \Rightarrow r = 1\,cm$

Wien Displacement law:

$$\lambda_{max} T = \text{constant} = 2.9 \times 10^6\ nm\,K$$

So $$T = \frac{2.9 \times 10^6\ nm\,K}{\lambda_{max}} = 1450\,K$$

Stefan Boltzmann law:

Intensity, $I = \sigma T^4$ (for a BB)

$$P = I(\text{area}) = \sigma T^4 4\pi r^2$$

$$= \underline{315\ W}$$