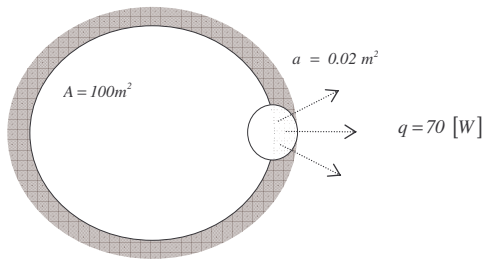


interior surface at $T_i = \text{const}$



reflection of the interior surface does not matter
(should not be only identical zero, but all real surface
will absorb something, and, then assumption of multiple reflections
from interior surface yields vanishing of all incoming rays)

Given system is close to a model of BB

Emission is diffuse $\Rightarrow E = \frac{q}{a} = \frac{70}{0.02} = 3500 \left[\frac{\text{W}}{\text{m}^2} \right]$

Total Emission of BB:

$$E = \sigma T^4$$

$$T = \left(\frac{E}{\sigma} \right)^{1/4} = \left(\frac{3500}{5.67e-8} \right)^{1/4} = 498 \text{ [K]}$$