a) \[ \lambda_{\text{max}} = \frac{0.201405 \text{Jc}}{k_b T} \Rightarrow T = \frac{0.201405 \text{Jc}}{k_b \lambda_{\text{max}}} \]

\[ = \frac{0.201405 \times (6.626 \times 10^{-34} \text{Js}) (3 \times 10^8 \text{m/s})}{(1.381 \times 10^{-23} \text{J/K})(480 \times 10^{-9} \text{m})} \]

\[ = 6035.4 \text{K} \]

Seems close to what it would be where the light comes from (photosphere).

Looked it up. Sun: 4500-6000K

b) pg. 336 (to0) says radiative power per surface area is given by

\[ \frac{C}{4 \pi V} = \frac{E}{4 \pi R^2} \left( \frac{k_B T}{15 \hbar c} \right)^4 \]

So total power radiated is this times surface area

\[ \frac{C}{4 \pi V} \times 4 \pi R^2 = \frac{8 \pi^6 R^2}{15 \hbar^3 c^2} \left( \frac{k_B T}{15 \hbar c} \right)^4 \]

\[ = \frac{8 \pi^6 (7 \times 10^8 \text{m})^2}{15 (6.626 \times 10^{-34} \text{Js})^3 (3 \times 10^8 \text{m/s})^2} \left[ (1.381 \times 10^{-23} \text{J/K})(6035 \text{K}) \right]^4 \]

\[ = 4.6 \times 10^{26} \text{W} \]

(reported: 3.8 \times 10^{26} \text{W, somewhat close})