

61. We use $\beta = 10 \log(I/I_o)$ with $I_o = 1 \times 10^{-12} \text{ W/m}^2$ and $I = P/4\pi r^2$ (an assumption we are asked to make in the problem). We estimate $r \approx 0.3 \text{ m}$ (distance from knuckle to ear) and find

$$P \approx 4\pi(0.3 \text{ m})^2 (1 \times 10^{-12} \text{ W/m}^2) 10^{6.2} = 2 \times 10^{-6} \text{ W} .$$