

$$5) 1\% \text{ of } 60 \text{ W} = 0.6 \text{ W}$$

$$I = \frac{P}{4\pi d^2} \quad \cancel{\frac{0.6}{4\pi r^2} 10^{-17}}$$

$$I = \frac{10^{-17}}{\text{A}} = \frac{10^{-17}}{\pi r^2} = \pi \times (4 \times 10^{-3})^2$$

$$\text{Must } \times \text{ by } \frac{1}{8\%} = 12.5 \text{ to get}$$

$$2.488 \times 10^{-12}$$

$$2.488 \times 10^{-12} = \frac{0.6}{4\pi d^2}$$

$$d^2 = \frac{0.6}{4\pi \times 2.488 \times 10^{-12}} = 1.92 \times 10^{10} \text{ m}$$

$$d = 1.39 \times 10^5 \text{ m}$$