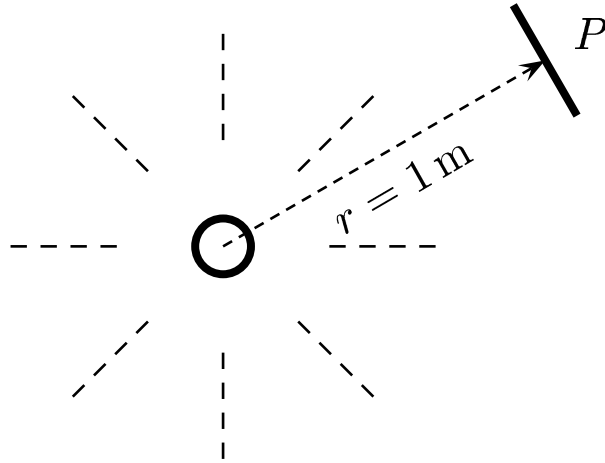


Given a light bulb with a power 120 W. A book is placed at point P , which is at a distance $r = 1$ m away. The book is perpendicular to the incident light. Its area is about 0.1 m^2 .



Find the intensity at P , $I = \langle \vec{S} \rangle$, where $\vec{S} = \vec{E} \times \vec{B}$.

- A) $I \approx 10 \text{ W/m}^2$
- B) $I \approx 100 \text{ W/m}^2$
- C) $I \approx 500 \text{ W/m}^2$
- D) $I \approx 1200 \text{ W/m}^2$

Since the light radiates isotropically, the power emitted is through a spherical surface, *i.e.* $4\pi r^2$.

$$I = \frac{\text{power}}{\text{area}} = \frac{120 \text{ W}}{4\pi r^2} = 10 \text{ W/m}^2.$$

Answer **A**.