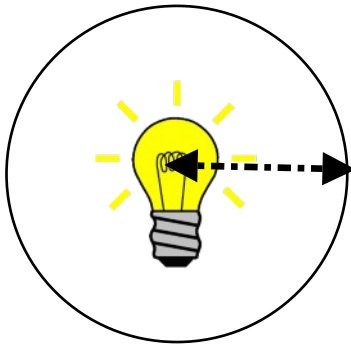
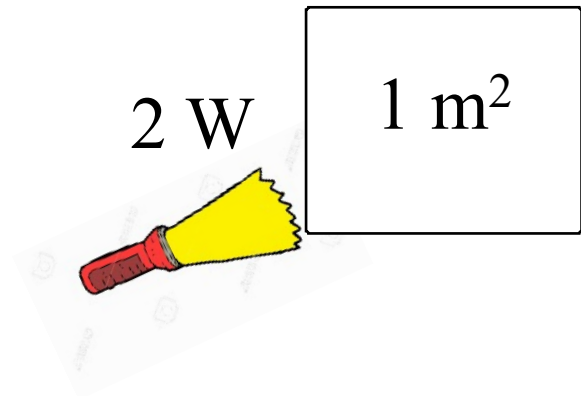


## Definition of Irradiance

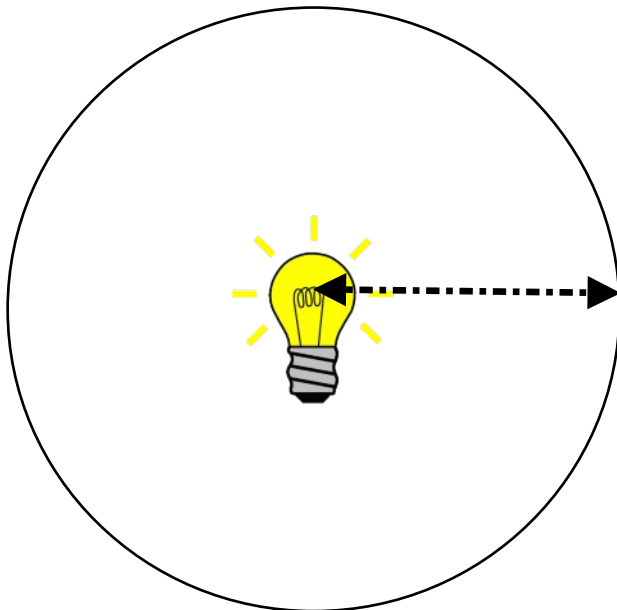
This is a measure of the amount of light energy incident onto one metre square per second.

$$I = \frac{P}{A}$$



A 100 W lamp is in the centre of a spherical lampshade of radius 2 m.

Calculate the irradiance of the lamp on the light shade.

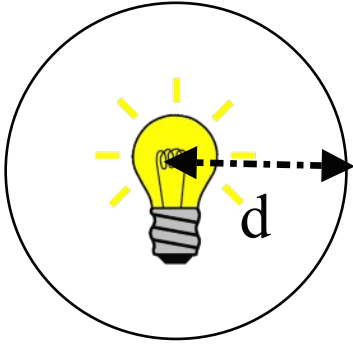


A 100 W lamp is in the centre of a spherical lampshade of radius 4 m.

Calculate the irradiance of the lamp on the light shade.

So for any given distance from the lamp of power  $P$  we can write down the irradiance of the lamp at distance  $d$  is given by:

## Inverse Square Law

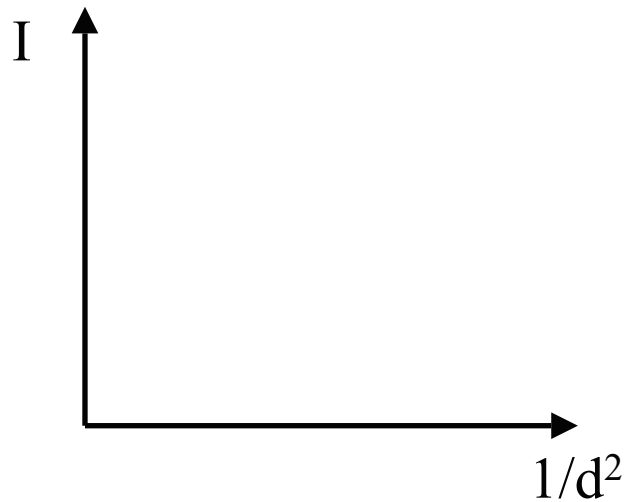
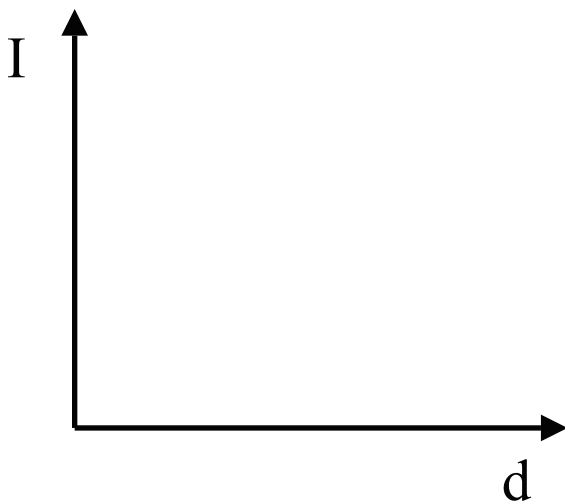


## Inverse Square Law Example

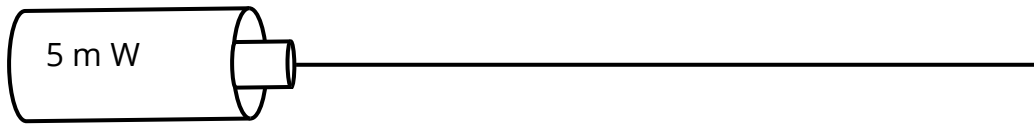
The irradiance of a point source of light a distance 4 metres away from the source is  $256 \text{ W m}^{-2}$

Calculate the irradiance of the light source at a distance of 12 m away.

## Graphs of Inverse Square Law



## Irradiance of Laser Light



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