

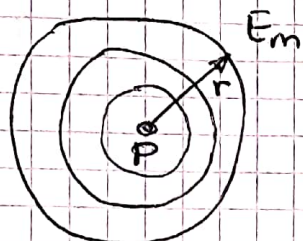
3)

Problema n° 3

$$E_m = 55 \text{ V/m}$$

$$r = 20 \text{ m}$$

Potencia radiada = ?



$$\frac{P}{A} = S \rightarrow P = S \cdot A$$

$$S = \frac{E_m^2}{2\mu_0 c}$$

$$P = \frac{E_m^2}{2\mu_0 c} \cdot 4\pi r^2$$

$$P = \frac{55^2 \times 4 \times \pi \times 20^2}{2 \times 4\pi \times 10^{-7} \times 3 \times 10^8} = 20170 \text{ W}$$

$$P = 20,17 \text{ kW}$$

Problema n° 4

$$r = 4 \text{ millas} = 8045 \text{ m}$$

$$P = 250 \text{ kW}$$

$$S = ?$$

$$S = I = \frac{P}{A} = \frac{P}{4\pi r^2}$$

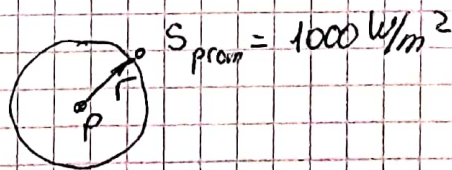
$$S = \frac{250 \times 10^3}{4\pi 8045^2} = 3,07 \times 10^{-4} \text{ W/m}^2$$

Problema n° 5

el sol radia con $P = 3,85 \times 10^{26} \text{ W}$

a) A qué distancia del sol la radiación decae a 1000 W/m^2

$$S = \frac{P}{4\pi r^2} \rightarrow r = \sqrt{\frac{P}{4\pi S}}$$



$$r = \sqrt{\frac{P}{4\pi S}} = 1,75 \times 10^{11} \text{ m}$$

b) $\mu_{prom} = ?$ Para r

$$\mu = \frac{S}{c} = \frac{1000}{3 \times 10^8} = 3,34 \times 10^{-6} \text{ (J/m}^2\text{)}$$