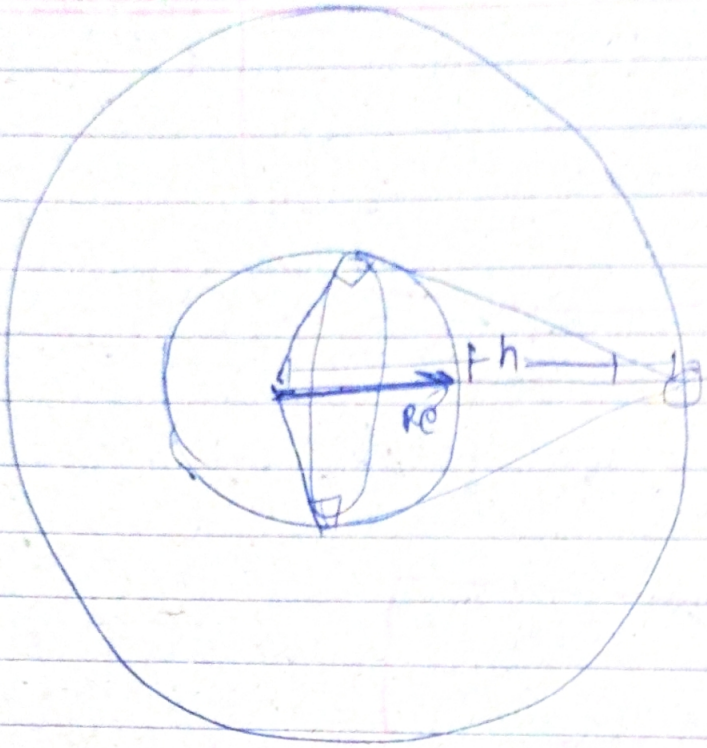
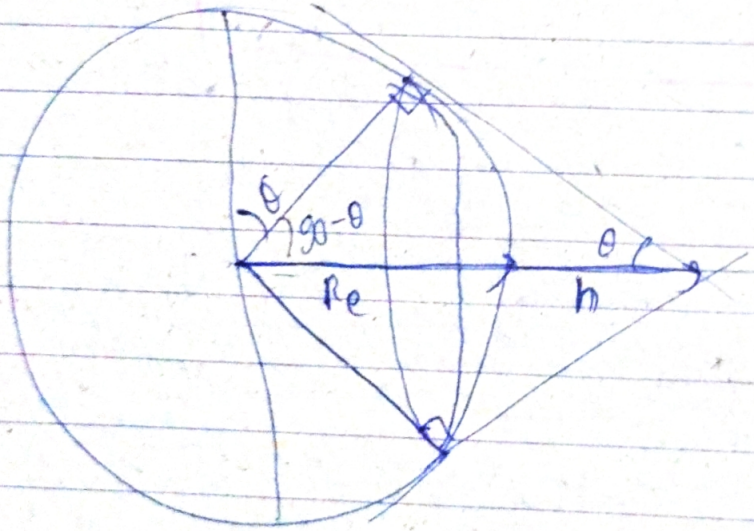
Brodcasting





$$\Omega = 2\pi \left(1 - \cos(90 - \theta)\right)$$

$$= 2\pi \left(1 - \frac{Re}{Re + h}\right)$$

$$\Omega = \frac{2\pi h}{Re + h}$$

$4\pi \longrightarrow 4\pi r^2$

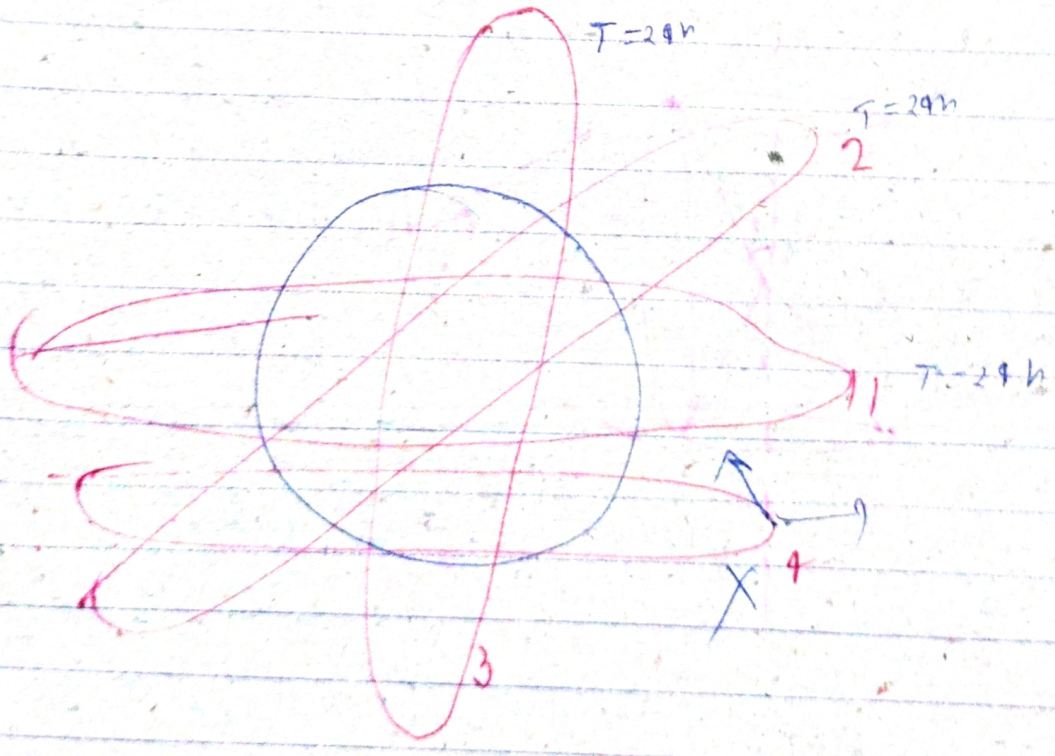
$\Omega \longrightarrow \Omega R_e^2$

$$\text{Area of broadcasting} = \frac{2\pi R_e^2 h}{R_e + h}$$

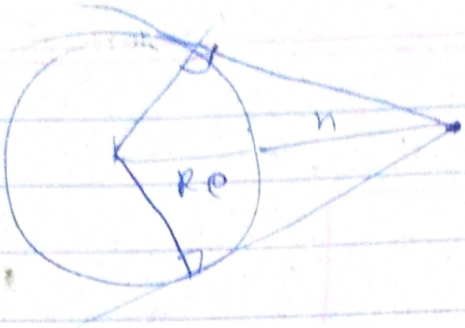
earth कैसे घूमती है → west to east

Geostationary satellite :-

ऐसे satellite जो earth के लिए stationary रहे उन्हे geostationary satellite कहते हैं।



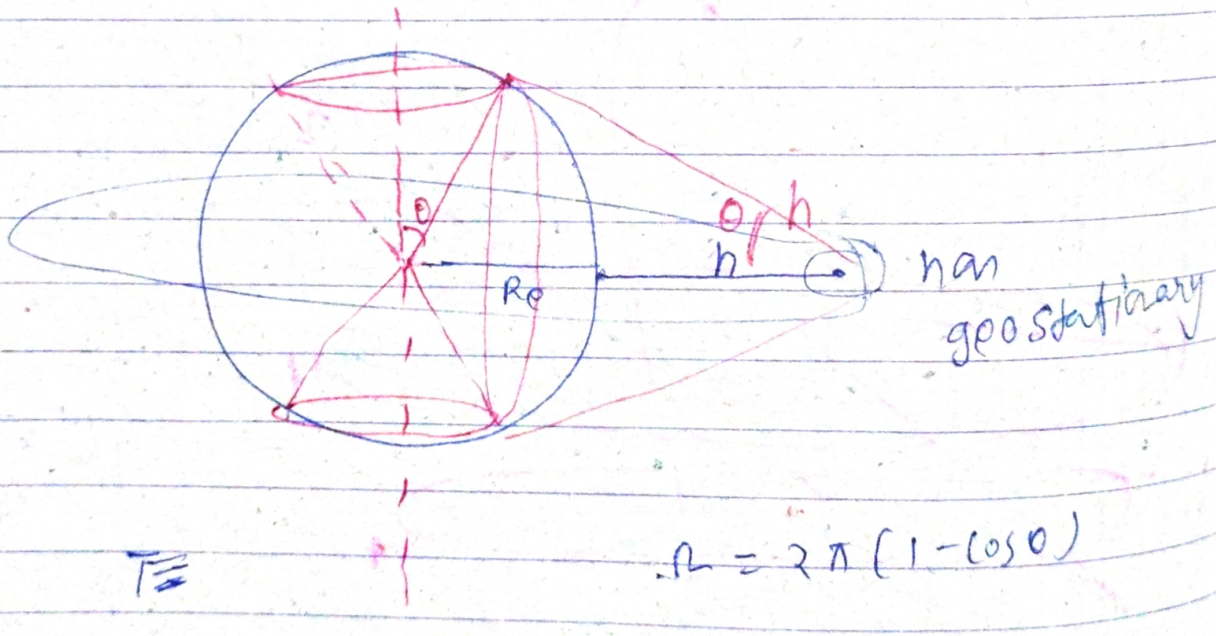
Geostational satellite का Time period → 24 hour
plane shall be equatorial
sense of rotation → west to east



$$T = 24 \times 60 \times 60 = \frac{2\pi}{\sqrt{G M_e}} (r_e + h)^{3/2}$$

$$h \simeq 36{,}000 \text{ km}$$

Qm Find out the Area where this satellite will not be able to broadcast



$$\Omega = 2\pi(1 - \cos\theta)$$

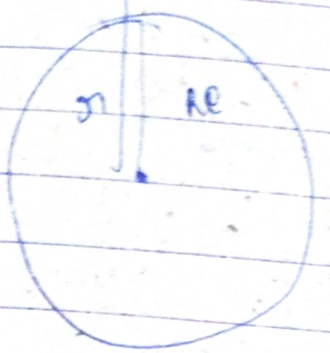
Ans.

$$2\pi \left(1 - \frac{\sqrt{(R_e+h)^2 - R_e^2}}{R_e + h}\right) \times R_e^2 \times 2$$

$u = 0$

st line

$F_e = \frac{m \cdot G M_e}{r^2}$

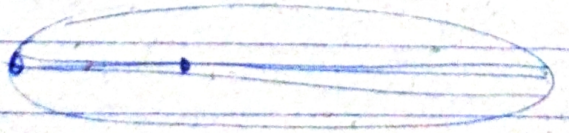


$u = \sqrt{\frac{GM_p}{r}}$

circle

$0 < u < \sqrt{\frac{GM_p}{r}}$

basic property of ellipse



Perigie Apogie