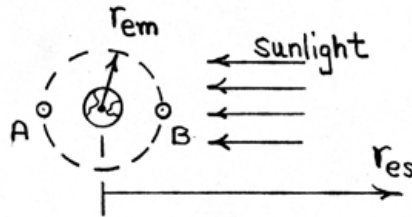


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Force exerted by earth on moon :

$$F_e = \frac{G m_e m_m}{r_{em}^2} = \frac{(6.673 \times 10^{-11}) (5.976 \times 10^{24})^2 (1) (0.0123)}{(3.84398 \times 10^8)^2}$$

$$= 1.984 \times 10^{20} \text{ N}$$

Forces exerted by sun on moon :

$$F_{sA} = \frac{G m_s m_m}{(r_{es} + r_{em})^2} = \frac{(6.673 \times 10^{-11}) (5.976 \times 10^{24})^2 (333,000) (0.0123)}{(1.496 \times 10^{11} + 3.84398 \times 10^8)^2}$$

$$= 4.34 \times 10^{20} \text{ N}$$

$$F_{sB} = \frac{G m_s m_m}{(r_{es} + r_{em})^2} = 4.38 \times 10^{20} \text{ N}$$

Ratios :

$$\frac{R_A}{R_B} = 2.19$$

$$\frac{R_B}{R_A} = 2.21$$