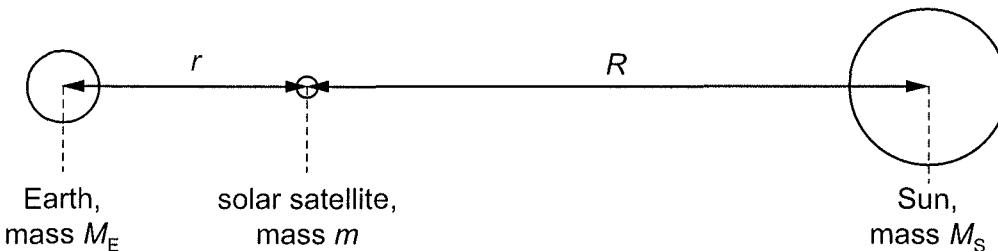


- 13 The diagram shows a solar satellite, mass m , positioned directly between the Earth, mass M_E , and the Sun, mass M_S . The satellite is a distance r from the Earth and a distance R from the Sun.



The satellite rotates in a circle around the Sun once a year and therefore moves around the Sun with the Earth, both having the same angular velocity ω .

Which $\text{force} = \text{mass} \times \text{acceleration}$ equation applies for the satellite?

A $\frac{GM_S m}{R^2} = m \times (R\omega^2)$

B $\frac{GM_E m}{R^2} = m \times (r\omega^2)$

C $\left(\frac{GM_E m}{r^2} - \frac{GM_S m}{R^2}\right) = m \times (R\omega^2)$

D $\left(\frac{GM_S m}{R^2} - \frac{GM_E m}{r^2}\right) = m \times (R\omega^2)$