

Answer on Question 37896, Physics, Electrodynamics Radius of Mercury is $R_m = 2440$ km. Mass of Mercury is $M_m = 3.3 \cdot 10^{23}$ kg. Radius of orbit is $R_o = R_m + 260 \text{ km} = 2700$ km. Knowing that we can write down condition of equilibrium of gravitational and centrifugal forces:

$$\frac{GmM_m}{R_o^2} = m\frac{v^2}{R_o}$$

From where we find

$$v = \sqrt{\frac{GM_m}{R_o}} = \sqrt{6.67 \cdot 10^{-11} \cdot 3.3 \cdot 10^{23} / 2700 \cdot 10^3} \approx 2855.2 \text{ m/s}$$

Knowing speed on orbit we can find the period:

$$T = 2\pi R_o / v = 5938.6 \text{ s} \approx 1.65 \text{ hours}$$