

PHYS 3740 In Class Group Exercise

Name: _____ Date: _____

Is the Moon classical? After Harris, Problem 4-24

The Moon orbits Earth at a radius of 3.84×10^8 m. To do so as a classical particle, its wavelength should be small. But small relative to what? Being a rough measure of the region where it is confined, the orbit radius is certainly a relevant dimension against which to compare the wavelength. Compare the two. Does the Moon indeed orbit as a classical particle? ($m_{\text{Earth}} = 5.98 \times 10^{24}$ kg and $m_{\text{Moon}} = 7.35 \times 10^{22}$ kg). The textbook also has some useful constants inside the front cover.