Notes

Quantum Mechanics

Yi Huang[1]

University of Minnesota

E-mail: yihphysics@gmail.com

[1] *My Personal Website*

Contents

PART

I

Caprice

1 Fall 2018

This is my note for some non-trivial but not systematic problems which involves some interesting physics or maths.

1.1 Walkway equilibrium

Suppose the mass of the objects attached to each end of the rope are m_1 and m_2, The angles between each segment of the rope, bended by the central object which has mass M, with the horizontal plane are θ and ϕ. The distance between two pulleys is L, and what we want to know is the vertical displacement d of the central object. Thus we can obtaind the equations for d when the system is at equilibrium.

$$L = d(\cot\theta + \cot\phi), \tag{1.1}$$

$$m_1 g\cos\theta = m_2\cos\phi, \tag{1.2}$$

$$m_1 g\sin\theta + m_2 g\sin\phi = Mg, \tag{1.3}$$