國立東華大學

Department of Physics
National Dong Hwa University, 1, Sec. 2,
Da Hsueh Rd., Shou-Feng, Hualien, 974, Taiwan

General Physics I, Quiz 3
PHYS10400, Class year 99
11-11-2010

SN:_____, Name:_____

Chapter 12-13, Serway; ABSOLUTELY NO CHEATING!
Please write the answers on the blank space or on the back of this paper to save resources.

1. A uniform plank of length 2.00 m and mass 30.0 kg is supported by three ropes as indicated by the blue vectors in Figure P12.25. Find the tension in each rope when a 700-N person is ***d*** = 0.500 m from the left end.

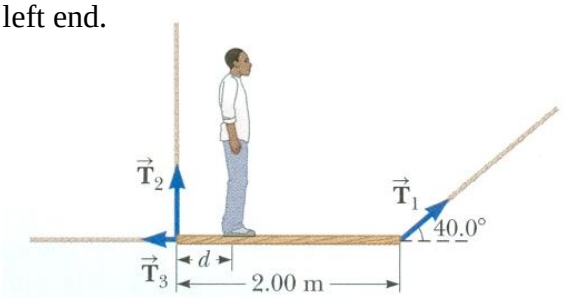

Figure P12.25

2. Three objects of equal mass are located at three corners of a square of edge length ℓ as shown in Figure P13.25. Find the magnitude and direction of the gravitational field at the fourth corner due to these objects.

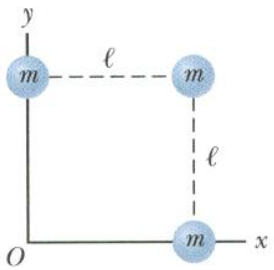

Figure P13.25

3. A minimum-energy transfer orbit to an outer planet consists of putting a spacecraft on an elliptical trajectory with the departure planet corresponding to the perihelion of the ellipse, or the closest point to the Sun, and the arrival planet at the aphelion, or the farthest point from the Sun. Use Kepler's third law to calculate how long it would take to go from Earth to Mars on such an orbit as show in Figure P13.15.

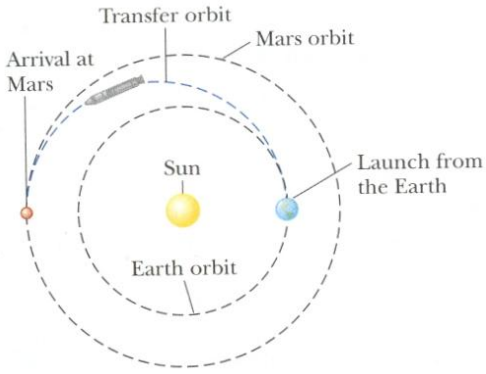

Figure P13.15