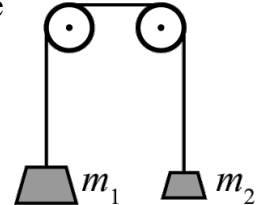

PHYS 1110 Group Work Sheet
Linked bodies

With your group, discuss how to answer these questions and write your group answer in the space provided.

1. An “Atwood machine” consists of two masses hanging from the opposite ends of a cable passing over a pulley. The constraint imposed by the cable is that the masses’ heights change by opposite amounts, $\Delta x_1 = -\Delta x_2$.

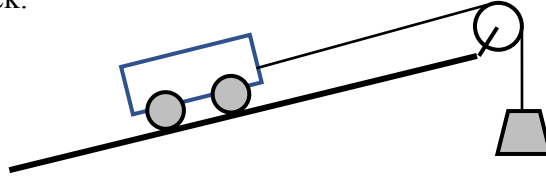


- a. What are the constraints on the masses’ velocities and accelerations?

- b. What are the accelerations of the masses?

- c. What is the tension in the cable?

2. A 5.00-kg cart on a frictionless track inclined at an angle of $\theta = 15^\circ$ above horizontal, is attached by a massless, inextensible cord to a 2.00-kg weight hanging from a pulley at the top of the track.



- a. Draw free body diagrams for the cart and the weight.
- b. Find formulas for the net forces on the cart and the hanging weight.
- c. What is the acceleration of the cart? In what direction is the cart accelerating?
- d. What is the tension in the cord?