General announcements

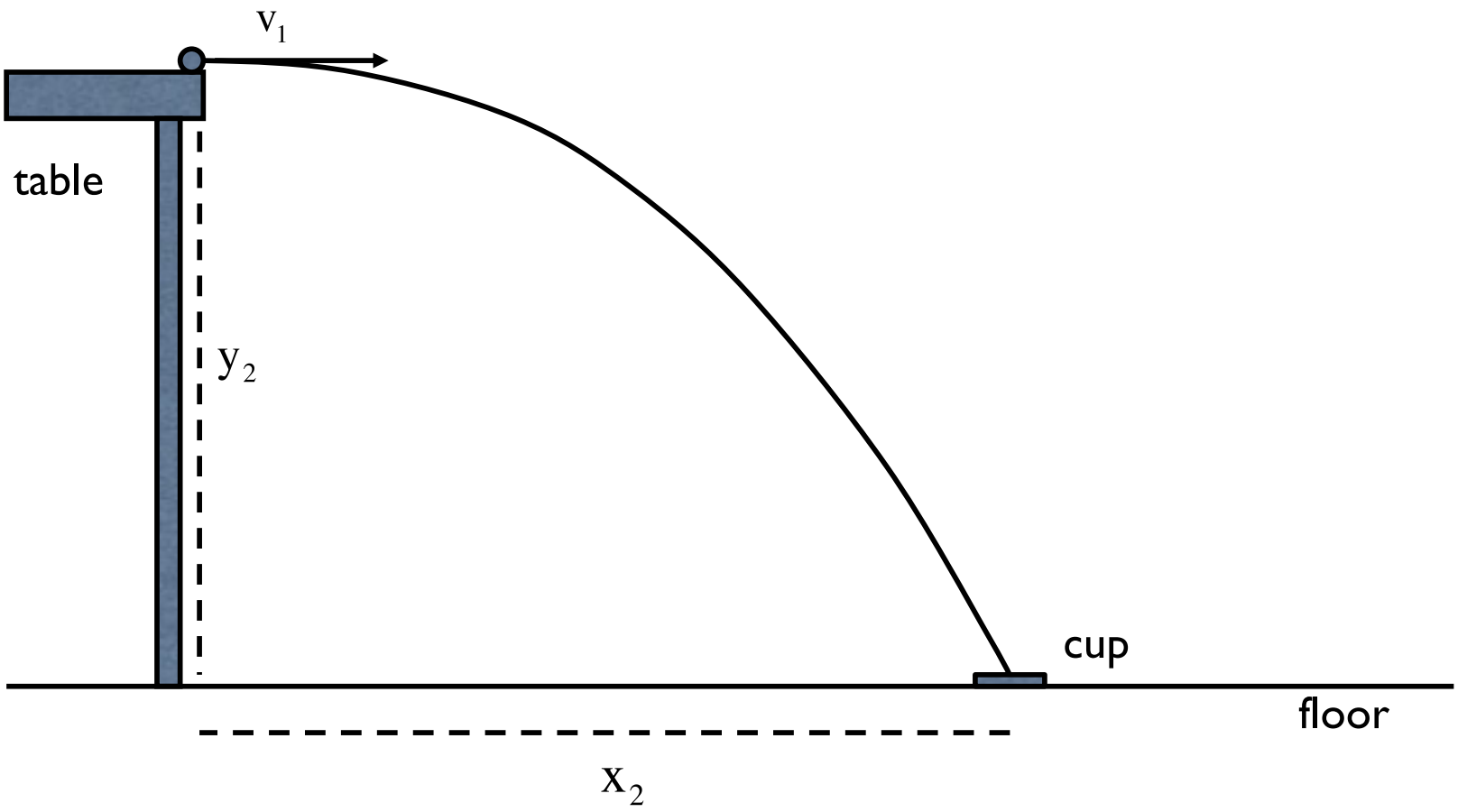
- *Homework*:
  - Complete all the pre-lab questions on To Catch a Ball lab. You will lose points if you haven't done this before walking in the door on lab day (I'll be checking); if you have time after doing this, begin writing up the Tilted Table lab.

- *TO CATCH A BALL* LAB:
  - Friday is the day of judgement…

To Catch a Ball Lab

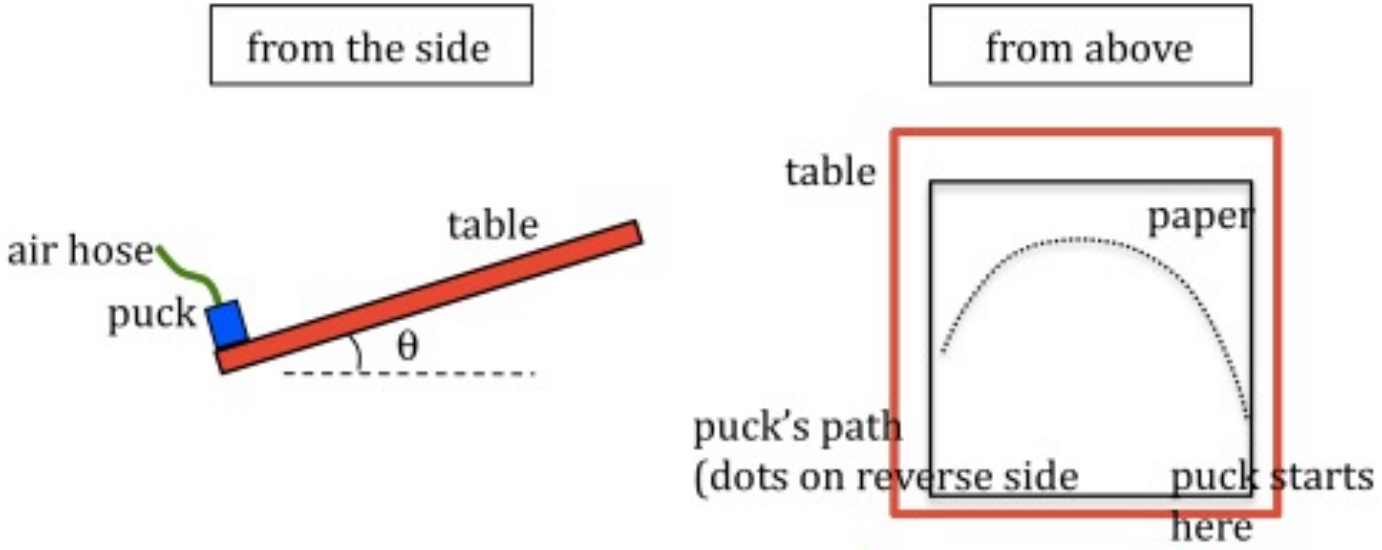
- *On Friday*, you will be executing the "To Catch a Ball Lab" procedure. This lab is EASY to do, but NOT SO EASY to prepare for. Basically, do the legwork BEFORE class!
- *The set up*:
  - The ball moving at a determinable velocity rolls off a table of known height. Using your knowledge of kinematics and common sense, you and your partner need to calculate BEFOREHAND where a cup needs to be positioned on the floor to catch the ball.
- *You must present* your prelab BEFORE testing. This is the list of equations and summary of measurements you will need to complete the task.
- *You will get* a few minutes to take whatever data you need to calculate your predicted distance.
- Then you get *ONE shot* to test your prediction (yes there is partial credit).
  - Your score on this lab will be determined by how close to the cup you come (hit it and you've got 20 points; be a cm or two off and you've got 19 points, etc.)

To Catch a Ball lab



Tilted Table Lab

a.) The device is a glass table upon which floats an air-levitated puck (i.e., air from a hose is forced down through a hole in the puck creating a cushion of air between it and the table). The table will be at a small angle (see sketch). Begin by using a protractor to measure the angle θ of the table (in fact, if you had done this with the data I'm giving you, you would have measured 9°).



Today: we'll take the data. Tomorrow: we'll look at how to analyze and write this lab up.

Tilted Table lab – extracting data

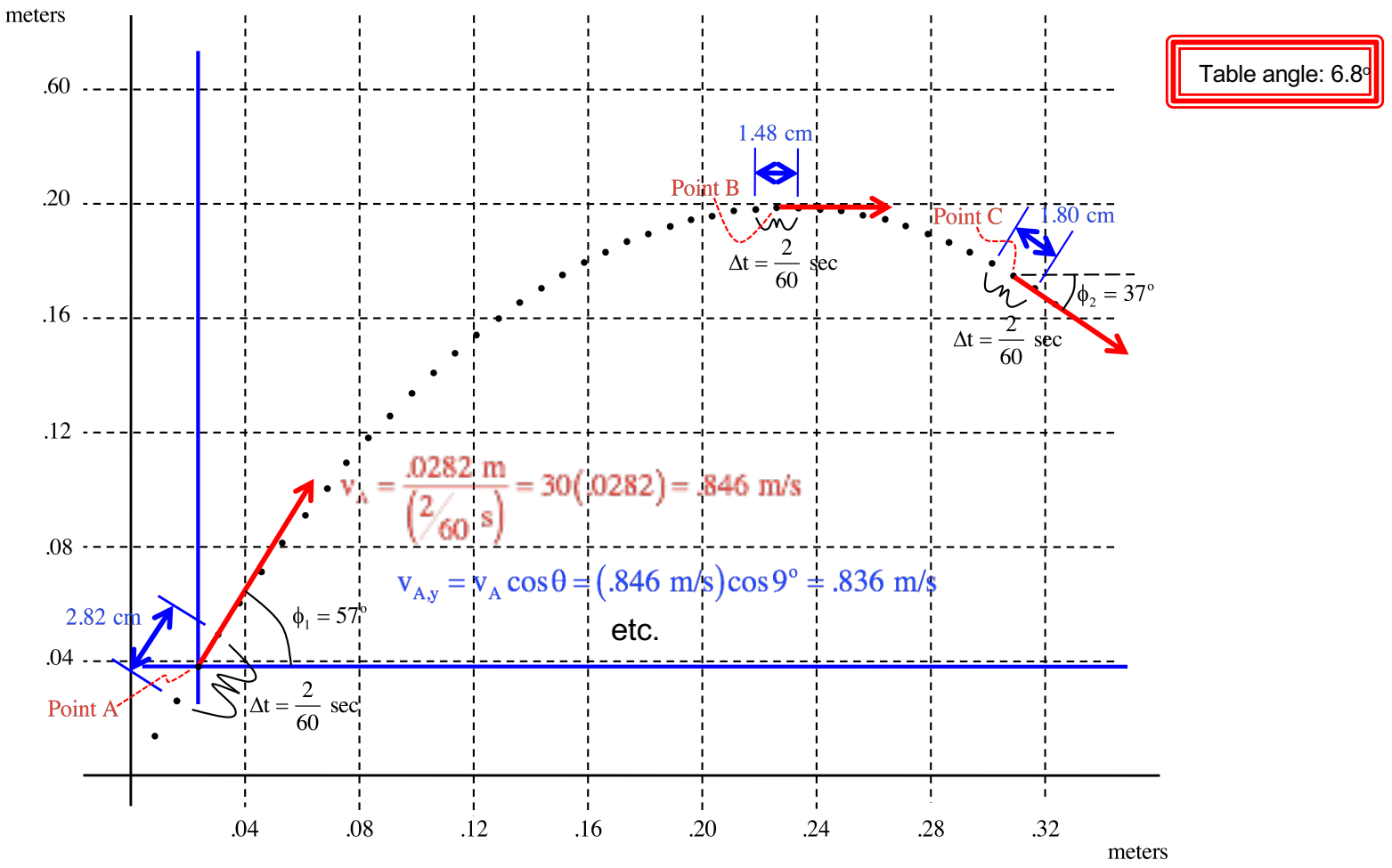


Table angle: 6.8°

Problem 3.23 (modified)

- A student throws a baseball off the top of a 50.0 m tall building with an initial speed of 18.0 m/s at an angle of 30.0º below the horizontal.
  - a) What are the baseball's initial coordinates?
  - b) Find the x- and y-components of the initial velocity.
  - c) Write the velocity equations as a function of time for both the x and y directions.
  - d) Write the position equations as a function of time for both the x and y directions

Problem 3.29 - how is this different?

- A stone is thrown upward from the top of a building at 15 m/s at an angle of 25º above the horizontal. The stone hits the ground below after 3.0 s. How tall is the cliff? How far from the base of the cliff does the stone land?