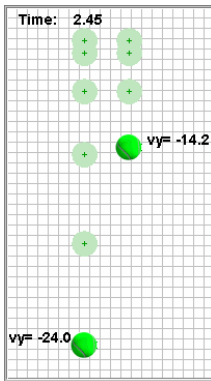


## Worksheet for Exploration 2.7: Drop Two Balls; One with a Delayed Drop

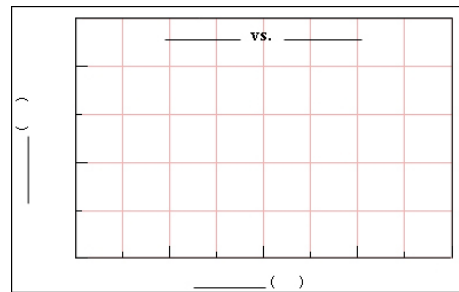
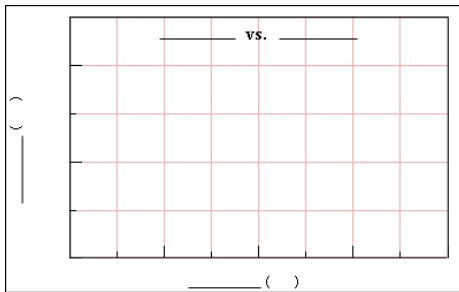


Two giant tennis balls are released from rest at a certain height. One (the ball on the right) can be dropped after the first ball is dropped. You may change the time delay from 0 to 2.5 s (enter the time delay in the text box and click the "set delay and play" button). The ghost images mark the balls' positions every 0.5 s (**position is given in meters and time is given in seconds**). [Restart](#).

Choose a one second delay (for simplicity) and then answer the following questions.

- a. Once the second tennis ball (the ball on the right) is released, does the difference in the speeds increase, decrease, or stay the same?

- i. Sketch a velocity vs. time plot for each object noting on each the time the balls strike the ground. What is the meaning of the area under each plot?



- b. Once the second tennis ball (the ball on the right) is released, does their separation increase, decrease, or stay the same?

- c. Is the time interval between the instants at which they hit the ground smaller than, equal to, or larger than the time interval between the instants at which they were released?