AP Physics Tennis Ball Lab

Setup:

* Given the following video determine the x(t) and y(t) for the ball between the two bounces.
* <http://moodle2.cherokee.k12.ga.us/creekview_hs/pluginfile.php/1186/mod_page/content/2/video_clip_tennis_ball.v3%20%281%29.mov>

Information:

* Video is 61 frames long
* 30frames/second
* 2.7m between the poles

Goal:

* Discover what:
  + x(t) =
  + y max is

Procedure:

Part one finding x(t)

Time at pole a is

Time at pole b is

= how long it takes the ball to go 2.7 meters

Time of bounce a is

Time of bounce b is

time of the motion of the projectile

Part two finding y(t)

Y at max is at

Y at max is equal to

So y at max is equal to 0.588 meters

Conclusion:

From the information given about the video it has been determined that the tennis ball at max height was .588 meters in the air. It has also been concluded that the distance the ball went in the x direction over the course of the bounce was 4.86 meters.