

Monday, March 25, 2024 10:45 AM

1. Ball has a starting position  $(X,Y,Z)$ 
  - a. Think about normal spot that a ball would be in when hit from a serve/volley
2. Ball has an initial trajectory direction and velocity
  - a. Find average velocity/serve speed and choose a vector direction that would get over to the other side of the court
3. Given starting  $XYZ$ , what is the new  $XYZ$  considering the trajectory/velocity/gravity at time  $t$

Equations should have the body:

$$\langle x(t) = a \cdot t^2 + b \cdot t + c, y(t) = d \cdot t^2 + e \cdot t + f, z(t) = g \cdot t^2 + h \cdot t + i \rangle$$

where  $(c, f, i)$  is the initial position of the tennis ball in 3d space.  $(b, e, h)$  are the initial velocity of the ball in 3d space.

input =  $t$   
output =  $X, Y, Z$

make 4 different  
eqn with different  
initial position/trajectory



