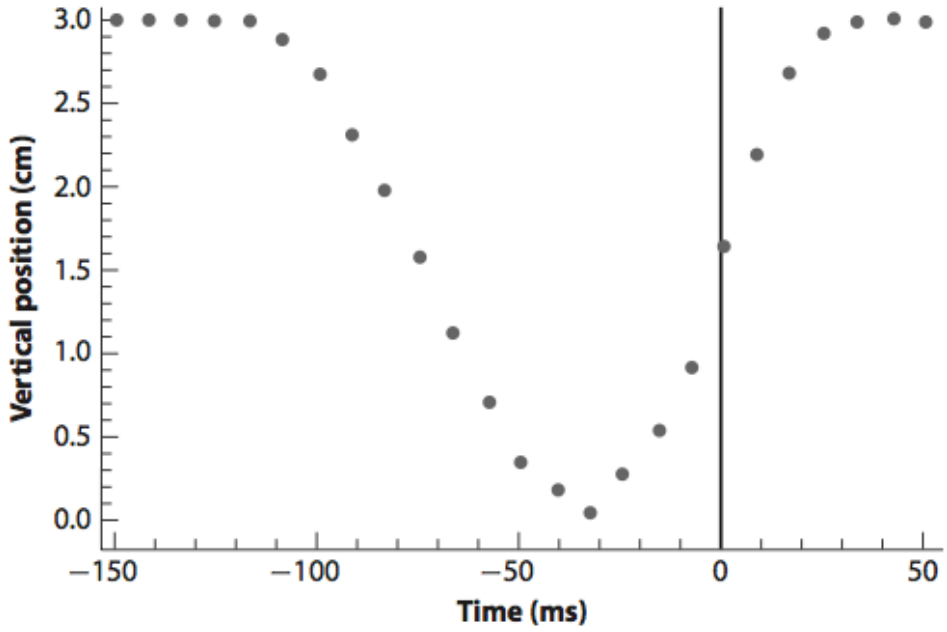
Math 152 – Spring 2016 – In-class Group Assignment 3 – February 1, 2016.

A study published in the journal Science (Reis et al., 2010) used slow-motion videos to collect time-series data on the vertical position of a cat's tongue as it drank water in an effort to better understand the kinematics (i.e., motion) of a cat's tongue while it laps up water. Reis et al. collected time-series data of the vertical position of the tongue through 11 laps of the tongue. The graph below shows the average vertical position of the cat's tongue over one lap of the tongue (i.e., the average position of the tongue at each time over the 11 laps of the tongue).



As a group, answer each of the below stating how you chose the data and what you did to calculate your answer

(a) Estimate the average velocity of the cat's tongue as it descends downward.
(b) Estimate the average velocity of the cat's tongue as it retracts into the mouth.

Pedro M. Reis, Sunghwan Jung, Jeffrey M. Aristoff, Roman Stocker. 2010. How Cats Lap: Water Uptake by *Felis catus*. Science 330:1231-1234.