## THE POOL SLIDE PROBLEM

Name: \_\_\_\_\_

Block: \_\_\_\_\_ Date: \_\_\_\_\_

Phoebe Small sits atop a swimming pool slide at time t = 0. Calvin Butterball, Phoebe's friend and math tutor, ascertains her velocity going down the slide to be  $v(t) = 10\sin(.3t)$  feet per second.

(a) On the following grid plot the graph of Phoebe's velocity as she slides to the water. Use the entire grid, making the graph as large as possible. You determine a suitable domain and range for the function. Don't forget to appropriately label your axes.



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(b) How fast was Phoebe moving when she hit the water?

(c) Give an estimate for the length of the slide.

(d) At what approximate "rate" was her velocity changing at t = 3? Use the values t = 3.0001 and t = 3.0000 for time.

(e) What is the name given to the rate of change of velocity?