Name_____

Recitation Day & Time_____

1. What is our current goal in the course?   Include 'exact' or 'approximate' in your responses.

Given an _____ function, to determine its _____ function.

2. A ball is thrown upward, and its height is monitored as time goes by. Below at right is the graph of the ball's height in meters as a function of time since being thrown in seconds.

IMPORTANT: Imagine x increasing ***continuously*** starting from $x = 0$, with a fixed interval of width of $h = 0.3$ seconds that always begins at the current value of x.
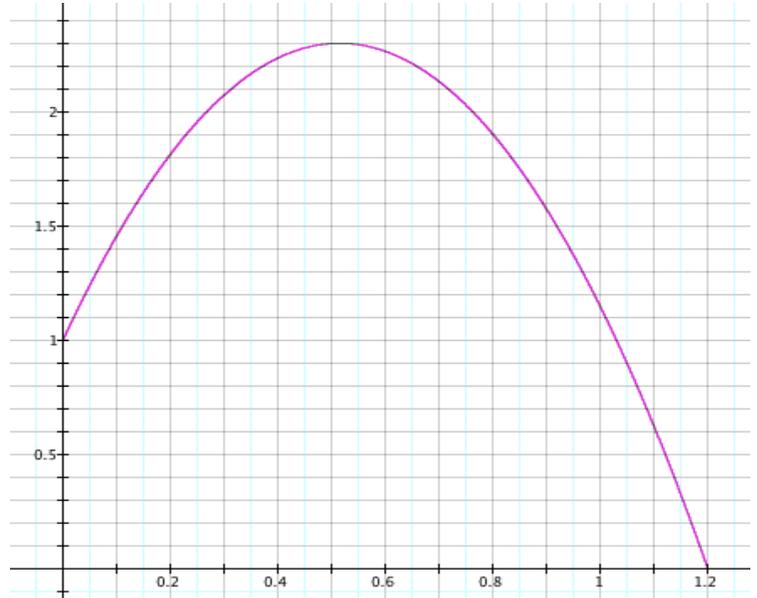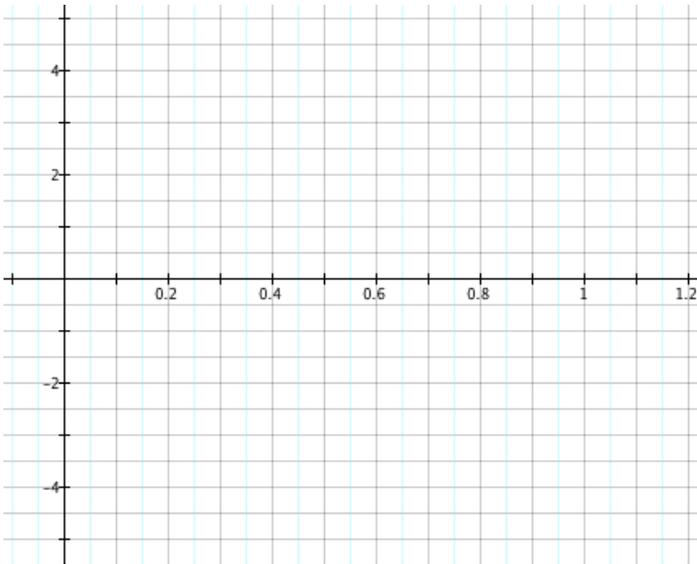
a) Suppose the current value of $x = 0.1$ seconds. On the graph at right above, draw a line that shows the constant rate of change that gives the same change in height as the ball during the next $h = 0.3$ seconds (starting at $x = 0.1$ seconds).

b) Calculate the constant rate of change that you represented in part a), by estimating values from the height axis.

c) The answer in part b) is an [exact, approximate] rate of change which is assigned to $x = 0.1$ sec.

d) On the axes above at left, represent this rate of change at this *moment* in time. (It's NOT a step!)

e) Repeat a)-d) above for two more moments in time: for $x = 0.45$ seconds and $x = 0.8$ seconds.

f) Suppose you repeated the process in a) - d) above for EVERY x value from 0 to 0.9 seconds. What would the resulting graph on the left axes be? Make a rough sketch of it.

g) Identify what you sketched in part f) with a phrase/statement. Be as specific as you can.

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Do not turn this sheet over until you are instructed to begin.