Math 1210 Chapter 3 Homework

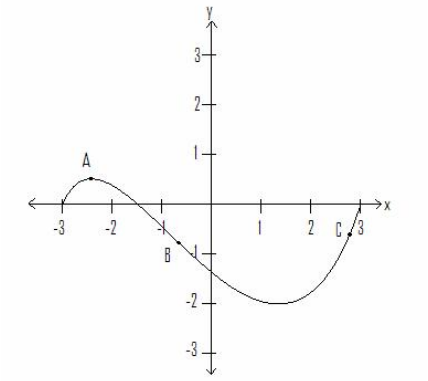
Test Corrections (optional but strongly encouraged): You may do test corrections for half the points you missed back. Please make corrections on the test itself either clearly boxed off from previous work or in a different color of pen/pencil. Detailed work must be shown. I must be able to tell that you really understand the problem. All missed problems must be correctly corrected to get the half points back. Bonus problems don't count. Late corrections are not accepted. Very few people get the corrections right on the first try, so **please have me look them over ahead of time**. Due Friday, Feb 9.

Resources for help:
My office hours are 11-12 Monday through Friday in my office, 120 Sc.
Eric and Jacob (TA) give help sessions during Wednesday classes.
Our Supplemental Instructor, Eric, has help sessions 3-4pm in Sc 129 on the days that homework is due.
Calculator question & answer sessions are Wednesdays 4-6 in 178c of the Sharwin Smith Center and are given by Alisha McCann.
The tutoring center in the Student Success Center in the Sharwin Smith Center has math tutors available
Monday-Thursday, 8am-10pm
Friday 8am-6pm
Saturday 2pm-6pm
Sunday 6pm-9pm

Date	**Lecture Topic**	**Assignment Due**
Feb 5	3.1,3.2	
Feb 6	3.2	
Feb 7	Help Session	
Feb 8	3.3	3.1,3.2
Feb 9	3.3,3.4	Chapter 2 Test Corrections
Feb 12	3.4	3.3
Feb 13	3.5	
Feb 14	Help Session	
Feb 15	3.6	3.4,3.5
Feb 16	3.6,3.7	
Feb 19	Presidents' Day Holiday	
Feb 20	3.7	3.6
Feb 21	Help Session	
Feb 22	3.8	3.7
Feb 23	Review	3.8
Feb 26	Chapter 3 Exam	Extra Credit Review

Hw 3.1:

A. Draw the tangent line to the graph shown at C. Draw the secant line through A and B.



B. Fill in the blanks: Slope represents the rate that _____ is changing with respect to _____.

C. Give a formula for average rate of change.

D. Fill in the blanks: The average rate of change is the slope of the _____ while the instantaneous rate of change is the slope of the _____.

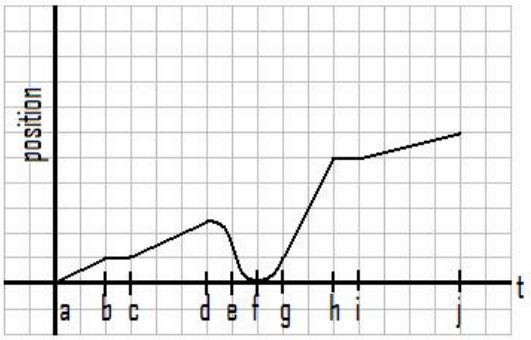
E. What is velocity? Give the definition, not how to find it.

F. Fill in the blank: Velocity is the derivative of _____.

G. Give three examples of real-life rates of change.

pg 176: 1,4,5,7

H. Below is a graph of the position of Suzie Lou vs time as she starts from home and ends up at school. Give time(s) or interval(s) of time that best fit the situations below. If it is a point in time, just put the letter. If it is an interval, use the word between. For example, Suzie leaves home is described by *a*, while Suzie stops to pet a dog is described by between *b* and *c*.



i. Suzie is running back home to get the math homework she forgot.

ii. Suzie is walking to school.

iii. Suzie is accelerating.

iv. Suzie is decelerating.

v. Suzie trips on the stairs in front of the school.

vi. Suzie is running to school.

vii. Suzie limps into school.

I. When is the average rate of change the same as the instantaneous rate of change?

J. Find $\frac{f(b)-f(a)}{b-a}$ where $f(x)=x^2$ for $a=2$ and the following values of b. What do you notice? Interpret what you noticed.

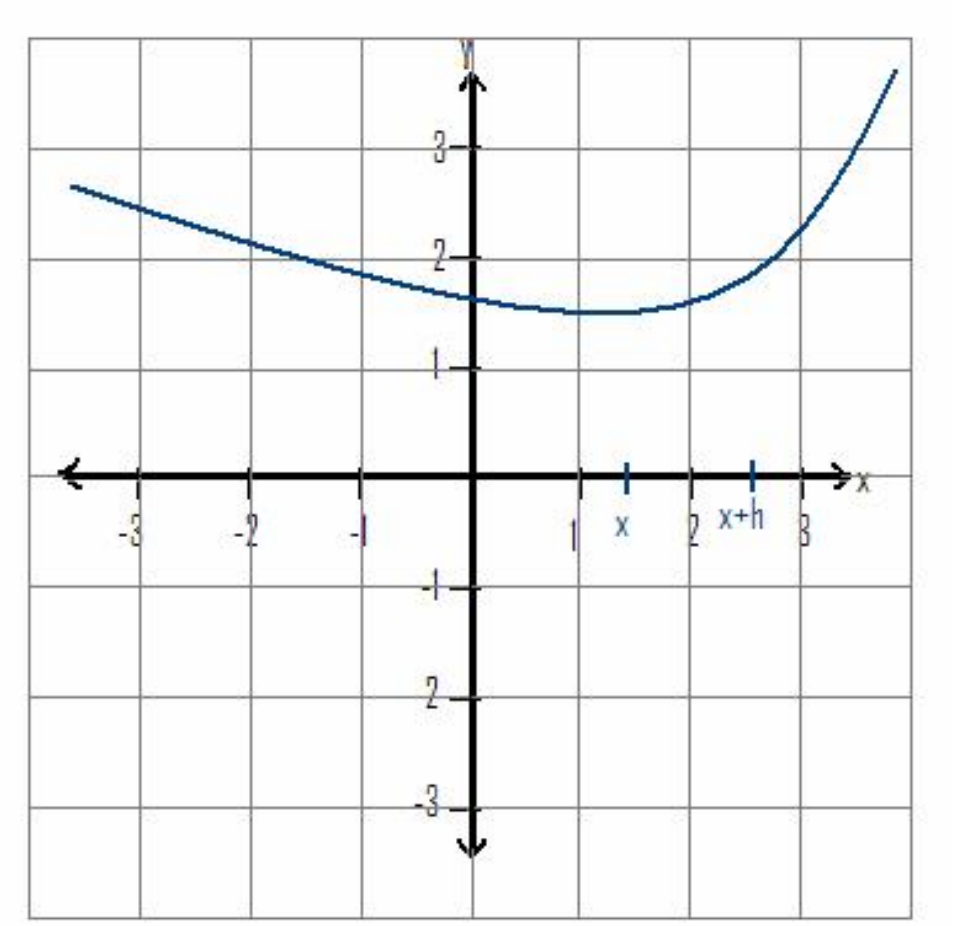
a. $b=1$
b. $b=1.5$
c. $b=1.9$
d. $b=1.999$

pg 177-178: 17,20a,23a

K. After an advertising campaign, sales of *The Irrational Book of Math Jokes* first increased, then decreased according to the model $S(t)=-40t^2+300t+4500$ where $S(t)$ is the number of books sold t weeks after the start of the ad campaign. What is the average change of sales during the third week, i.e. from $t=2$ to $t=3$? Be sure to label the units.

Hw 3.2:

A. Label/draw the following on the graph below.
   a. $f(x)$
   b. $f(x+h)$
   c. $(x, f(x))$
   d. $(x+h, f(x+h))$
   e. the secant line between the above two ordered pairs
   f. give the slope of the above secant line
   g. the line segment of length h
   h. the line segment of length $f(x+h) - f(x)$



B. Give the definition of $f'(x)$ as a limit.

C. What does the derivative of a function have to do with its graph?

D. Give two notations commonly used for the derivative.

Quick Check Exercise pg 187: 3

Exercises pg 187-189: 1-6,8-10,13,16,18,19,21-24,25bc,26ab,27a,28a,35,38

E. Find $\lim_{h\to 0} \frac{f(x+h)-f(x)}{h}$ for $f(x) = 2x - 7$. Give the value of the limit when $x = 3$ and interpret your answer.

F. What does it mean for a function to be differentiable at a point?

G. True or false? If a function is differentiable, then it is continuous.

H. Draw the graph of a function that is continuous but not differentiable.

pg 189: 43,44

The other chapter 3 assignments will be handed out in class soon. They will posted on the course website too.