

Math 1210-2

Wed Oct 17

Exam Friday!

9.1.4, 1.6, 2.1-2.9

Sample problems

	<u>Notes</u>	<u>webworks</u>	<u>text</u>
<u>1.4 trig limits</u> especially know $\lim_{t \rightarrow 0} \frac{\sin t}{t} = 1$ $\lim_{t \rightarrow 0} \frac{1 - \cos t}{t} = 0$ and how to combine these limits with trig identities to compute other limits	9/17 #5, 6	ww4 #4, 5	p 77 #3, 8, 11
<u>1.6 continuity</u> know definition: f is continuous at $x=c$ means $\lim_{x \rightarrow c} f(x) = f(c)$ continuity theorems checking that, or making, functions continuous	9/18 #1, 2, 3, 4, 5, 6	ww4 #3, 6, 7	p 89 #33, 42, 45
<u>2.1-2.2</u> Definition of derivative and interpretation as slope of graph or rate of change know <u>definition</u> $f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$ and how to use def to find deriv in "easy" examples. <u>interpretation</u> : on a graph $y = f(x)$ you are finding the slope at $(x, f(x))$, as a limit of secant line slopes. If you include units, then $f'(x)$ is the rate of change of f with respect to x	9/19 #1, 2 9/21 #1, 2, 3 9/17 #6 quiz 4 #1, #3	ww3 #7, 8, #4, 9 ww4 #9, 10, 11, 14	p 98 #23 p 148 #1 acef, #3 ch, #4
<u>2.3-2.5</u> derivative rules sum, product, quotient, chain powers trig fns	9/21 #4, 6, 7 9/24 #1, 2, 5 9/25 #2 quiz 4 #2	ww4 #15-21	p 148-9 #5, 11, 13, 22

2.6 Higher order derivatives

different notations & how to compute
position-vel-accel.

2.7-2.8 implicit differentiation
related rates

how to find $f'(x)$ if $y = f(x)$ satisfies
some equation $E(x, y) = F(x, y)$, even
if you don't have explicit formula for f

if you know how fast one (or more)
functions is changing at some instant,
figure out how fast a related function
is changing

know basic geometry formulas! 10/1 notes ←

2.9 differentials and approximation

$dy = f'(x)dx$ → compute dy

$$f(x+\Delta x) - \underbrace{f(x)}_y = \Delta y \approx dy$$

$$f(x+\Delta x) = y + \Delta y$$

$$\approx y + dy$$

→ estimate $f(x+\Delta x)$
error analysis

Notes

9/26 #1, 2

9/26 #3

9/28 #1

quiz 5 #1

9/28 #2, 3, 4

10/2 1, 2, 3, 4

10/3 #1, 2,
3, 4

webworks

ww4 #24

ww5 #1, 2

ww5 #3, 4, 5

ww5 6-15 !!

ww5 17-18

text

p 149 #39, 38

p 149 #41ce, 42

p 149 #35-37
46, 47

p 149 #43