

Math 1210-3
Wed Feb 27

Exam Friday

Problem session tonight 7-8:30 p.m. JFB 102
tomorrow 9:40-10:30 a.m. here (as usual).

In tonight's session I'll go over the practice exam.

Exam 2 Review Sheet

Exam covers 1.4, 1.6, 2.1-2.9

Resources:

Class notes

Text

Webworks 3-5

Problems & VIP

Friday quizzes - also look at 1210fall07 page

Practice test

Study advice (same as for 1st midterm!)

organize your thinking by concepts.

Exam questions are designed to test your understanding. The purpose of homework/sample problems is to help you learn and test your understanding of the concepts, and your ability to use them.

Concepts:

Limits (recall the limit ideas you learned before the 1st midterm, along with the topics below.)

1.4 trig limits : especially know

$$\lim_{t \rightarrow 0} \frac{\sin t}{t} = 1$$

$$\lim_{t \rightarrow 0} \frac{1 - \cos t}{t} = 0$$

and how to use these facts together with trig identities & clever algebra, to compute other limits.

1.6 continuity know def: f is continuous at $x=c$ means $\lim_{x \rightarrow c} f(x) = f(c)$.

What does this have to do with 1-sided limits?

what functions do you know are continuous? why?

matching limits & f values to make functions continuous at a given point.

Sample Problems

Notes & quizzes	webworks	text
2/4 #5, 6 quiz 4 #1		p. 77 #3, 8, 11
2/5 #1, 2, 3, 4, 5 quiz 4 #2	you fill this in	p. 89 #33, 42, 45

← solns on-line!

Derivatives (Chapter 2)

2.1-2.2 Definition of derivative

$$f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$$

interpretation, as limit of
 • secant line slopes on the graph of f
 • average rates of change of f
 w.r.t. x -variable (often " t ")

estimating average rates of change and
 exact derivs from graphical data,
 and/or average rates of change
 from formula for $f(x)$

using the limit def to compute derivs.
 in "not too hard" examples

2.3-2.5 Derivative rules:

sum, product, quotient, chain
 powers (integer, rational)
 trig fns (all!)
 examples in which many of
 the rules are used at once

2.6 Higher order derivs.

different notations for
 how to compute
 pos - vel - accel.

2.7-2.8 Implicit differentiation & related rates (chain rule apps)

How to find $f'(x)$ if $y = f(x)$
 satisfies some equation

$E(x, y) = F(x, y)$,
 even if you don't have an
 explicit formula for f .

If you know how fast one (or more)
 function(s) is changing at an
 instant, deduce how fast a
 related fn is changing.
 the 5-step process.

know basic measurement geometry
 formulas! (feb19.pdf)

2.9 Differentials and approximation

$$dy = f'(x)dx$$

$$y + \Delta y \approx y + dy$$

error analysis.

Notes/quizzes webworks

text

2/8 #1, 2

12/10 fall 07
 quiz 4 #1

2/8 #3

2/8 #4-7

2/11 #1, 2, 5

2/12 #3

2/13 #1, 2, 3

quiz 5 #1-5

2/13 #3, 4

2/15 #2, 3

quiz 6 #1

~~2/11 #4~~

2/12 #2

2/19 #1, 2, 3

2/20 #1-4

(esp. 4).

12/10 fall 07 quiz 5

2/19 #4-9

2/25 #1-4

p 98 #23

p 148 #1 ace f
 #3 ch
 #4

p 148-9

#5, 11, 12, 22

p 149 #38, 39

p 149 #41 ce, 42

p 149 #35-37
 46, 47

p 149 #43

you fill this in