

## WELCOME TO MATH 223/224 INTRODUCTION TO CALCULUS/DIFFERENTIAL CALCULUS

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See Math 223/224 Director's page for syllabus with grade policy and distribution of points to tests, quizzes/take-home assignments, participation, and WebAssign.

To create your WebAssign account, go to Cengage log in and register. Our class key is BINGHAMTON07007209

The e-book for Stewart's *Precalculus 7e* and *Calculus 9e* are found on the main student page in Cengage. Readings from both will be assigned; most problem sets will come from *Calculus*.

Exercises in *Precalculus*, Stewart, 7th ed. are to do *in addition* to the WebAssign. If they are listed it's because they focus on the skills you should have. Ask in class about any you have difficulty with.

🤖 Each week I'll desk check and sometimes collect a selection of these exercises. I'll let you know in the preceding class when I do this.

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### WEEK 1 AUG 24-26

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Summary of assignments for first week - if an exercise gives you trouble, rest assured we'll cover them in class. These early exercises give me a broad idea of how familiar you are with fundamentals.

Exercises are to be done in a separate part of your notes. It's up to you to do them, and to have questions ready to ask in class. I will tell you ahead of time when I plan to collect a set.

#### **Wednesday**

- Watch Real numbers
- Read Appendix A in *Calculus*
- In Appendix A, do #1, 5, 8, 10, 11, 25, 31, 43, 45, 49, 51
- Do WebAssign warmup (you have free access until Sept 7)

#### 🤖 **Friday to Sunday** 🤖

- View Dr Kazmierczak's *required videos* and read the corresponding sections in *Precalculus* e-book:

Inequalities Sec 1.8

Lines Sec 1.10 Coordinate plane; graphs of equations; circles Sec 1.9

- Helpful internet mini-videos on solving inequalities:

Video 1 Video 2 Video 3 Video 4

- In *Precalculus* e-book, do Exercises Sec 1.8 #16, 18, 22, 32, 38, 47, 52, 60, 65, 79, 81, 97, 99, 113, 119 (Monday desk check only)
- Lecture Notes Week 1

Go to Cengage unlimited for info on purchasing and renting the book

## WEEK 2 Aug 29-Sept 2

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WA schedule with some extensions to help those just getting into WA:

1. By Tuesday night, Appendix A and Warm-up Appendix C
2. By Wednesday, class time, Appendix B and Warm-up Sec 1.1
3. By Friday, class time, Warm-up Sec 1.2
4. By Friday before midnight, App C

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### **Monday-Tuesday**

- Do in *Precalculus*: Sec 1.10 (lines): #3-8 (short answer), 25, 29, 35, 37, 47, 59, 67, 77
- View Graphing a circle in standard form and Completing the square to find circle equation
- Do in *Precalculus*: Sec 1.9 (coordinate plane, circles) #7, 15, 16, 25, 85, 89, 91, 95\* (we can do it in class), 99, 103
- View Dr Kaz's videos, read corresponding sections in *Precalculus* e-book:

Rational expressions & domain Sec 1.4

Graphs of functions Sec 2.2

Getting information from a graph Sec 2.3

Transformations of functions Sec 2.6

### **Wednesday-Thursday**

- Read in *Calculus* e-book, Secs 1.1 & 1.2
- Kazmierczak videos Equations, Quadratic fcns & models & Polynomial fcns & their graphs
- Do in *Calculus*: Sec 1.1 (Four ways to represent functions) #39, 41, 47, 51, 53, 56 (important piecewise function), 65, 70, 81, 83, 85
- Read Sec 1.2 (Mathematical models/essential fcns) #1, 4, 17, 21, 27, 28
- *Study Table 3*: Essential fcns & their graphs (know how to sketch from memory by midterm)
- Here are my own Essential fcn sketches with domains & short video to accompany it: Domain & range of 9 basic fcns
- 🤪 Summary of Stewart exercises so far: *Precalculus* Secs 1.8, 1.0, 1.10, & *Calculus* Secs 1.1, 1.2

Without fail, on Friday I'll do a desk check of these 😊

- Lecture notes Week 2
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LABOR DAY WEEKEND

### Before Tues lecture

- If you need more on domain, view Domain of rational and root functions
  - Everyone view Odd and even functions
  - Read in *Calculus*, Sec 1.3 On fcn transformations
  - View Kazmierczak videos Fcn transformations (shifts) & Fcn transformations (reflections, stretches, and compressions)
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### WEEK 3 SEPT 6-9

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WebAssigns due this week:

1. Class warmup Sec 1.3, due Tuesday night 9/6
2. Sec 1.1, due Wednesday night 9/7
3. Class warmup Dividing polynomials and factoring, due Thursday morning 9/8
4. Sec 1.2, due Thursday night 9/8
5. Class warmup App D, due Friday 9/9 before class, Sec 1.3, due Friday night

### Tuesday

😬 The second half of lecture today kind of fell short, in that I didn't take the time to do more combined transformations. So ... I'll be adding some notes to the lecture notes and inserting them as before. And I will embellish the intro to polynomials.

Polynomial hw has been moved to Thursday night. Catch up on WebAssign.

\* On the last page of Lecture notes Week 2 I've described the domains of the four composite functions. Express these in interval notation and hand in tomorrow. It's not an involved exercise!

- Kazmierczak videos Dividing polynomials & Real zeros of polynomials

### Wednesday-Thursday

- Do exercises in *Precalculus* Sec 2.6 #7-51 odd (mainly short answer), 59, 63, 65, 69, 83-89 odd
- Do exercises in *Precalculus* Sec 3.3 (dividing polynomials): #4 (can't do it with synthetic in the form it's in) 13, 17, 23, 27, 31, 39, 57, 63
- Kazmierczak videos for Friday: Trigonometry of right angles, Unit circle
- Division algorithm office hour video

**Friday** First trigonometry lecture

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### WEEKEND SEPT 10-11

- Read App D in *Calculus and for greater detail see Precalculus* Secs. 5.1-2, 6.1-3
- Do Exercises in *Precalculus* Sec 3.4 (real zeros of polynomials): #1, 5, 9, 11, 17, 31, 55, 61
- Kaz video Trig fcns of real numbers
- Trig exercises to start: Sec 5.1: #1, 5, 13, 17, 19, 25, 29, 47, 51 and Sec 5.2: 5-21 odd, 27-35 odd

WebAssigns due next (I've been generous with extensions of older function material, get them done)

1. CLASS WARMUP: Section 1.1 due Saturday night
2. Dividing Polynomials and Factoring due Monday night
3. Section 1.3 (Part 2) due Monday night Appendix D (Trigonometry)
4. Math 223 Midterm Review (not graded) Definitely do it by Wed class time

Lecture notes Week 3

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WEEK 4 Sept 12-16

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**Monday** New trig and review for Friday's midterm

- Watch Unit circle video
- UNIT CIRCLE ART HW GRADE! Create a unit circle *to bring to class on Wednesday*. Use a jar lid or compass to make an accurate circle and use a straight edge to make the lines. Prefer blank or copy paper to lined.
- Short trig quiz on Wednesday (using unit circle you create)
- Finish up Sec 5.1 and 5.2 exercises

**Trigonometry exercises for the rest of the week**

- Textbook exercises in *Calculus* App. D #1, 5-11 odd, 19, 23-33 odd, 65-71 odd, 83-87 odd
- Nutley H.S. solving trig eqns worksheet #1-10 (focus on sine, cosine, tangent)

Graphs are not on the quiz tomorrow, but an ability to render a graph is needed to both understand inverse functions next week and to draw trig transformations on the final).

⚠ Some of the questions here on the Previous midterm Fall 2015 and Solutions are not in our list, some are. Do the WebAssign midterm review and of course see exercises I have listed.

**Midterm topics:** Absolute value inequalities, quadratic or rational inequalities; write parabola or circle in standard (h,k) form to determine features and be able to graph result; transformations of essential functions and intercepts; polynomial stuff; trigonometry part 1 (anything we have done, including solving a simple trig eqn (Nutley HS).

Watch the Office hour video!. You can see some of the more recent midterm questions here, the one I can't post but did cover many items from in class and a couple here.

**Friday** Midterm, no lecture

--- WEEKEND SEPT 17-18

- View Arc length and area of a sector of a circle
  - In *Precalculus* do Sec 6.1 Exercises #53-69 odd with arc length  $s = \theta \times r$ ; sector area =  $(r^2)(\theta/2)$
  - In *Precalculus* read Sec 2.8 (inverse fcns), Sec 5.5 (graphs of inverse trigonometric functions), and Sec 6.4 (evaluating inverse trig fcns)
  - View Kaz videos:
    1. Inverse functions
    2. Inverse trig fcn graphs
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WEEK 5 Sept 19-23

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### Monday

- First go back and do the weekend viewing; then do the arc length and sector area problems - I will post my own short video on this, as I never got a chance to talk about it in class
- In *Calculus* read Sec 6.1 up to p 415 (skip the end of this section on derivatives!)
- Sec 6.1 #17-29 odd, #37, 39
- In *Calculus* read Sec 6.6 to p 489 (skip limits!)
- View Inverse trig fcns and triangles
- Try these inverse trig evaluations in Sec 6.6 #1-9 odd

Here's my Arc length and sector area video

### Wednesday

- View Kazmierczak *mini-videos* (total viewing time is under 9 minutes!):
  1. Exponential fcns
  2. Natural exp fcn
  3. Logarithmic functions
  4. Laws of logarithms
  5. Exponential and logarithmic equations
  6. Modeling with logarithms

**To hand in by email by Friday 3 pm** from Nutley High School worksheet, #13, 15, and 16; be sure to show your complete work!

### **FRIDAY WE WILL MEET REMOTELY AT THE ZOOM LINK**

Friday's quiz moved to Wednesday when we return. 5 questions total, 3 topics:

1. Determine if a fcn is even, odd, or neither using definitions
2. Find inverse of non-trigonometric fcn and graph the two fcns on one plane
3. Do three inverse trig function calculations, including a composition

### WEEKEND SEPT 25

Friday Sept 23 lecture

Office hour questions on inverse trig fcns with Rui

Do these *Calculus* textbook exercises for Wednesday:

Trigonometry: Sec 6.6, #1-13 odd Inverse fcns: Sec 6.1 #7-13 odd, 25-29 odd Log and exp fcns: Sec. 6.2 #7, 9, 17;  
Sec. 6.3 #3-7 odd, 15, 17, 21, 23

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WEEK 6 SEPT 28-30

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### Wednesday

- Do these *Calculus* textbook exercises for Friday: Sec 6.2\* #1, 3, 7, 9; Sec 6.3\* #3, 5 (leave in e or ln form), 17, 21, 23; Sec 6.4\* #1, 3, 7, 9

### Friday-Sunday

- Read in *Calculus* Secs 1.5 and 1.6; for more detail see *Precalculus* Secs 13.1 and 13.2
- View Finding limits numerically and graphically and Finding limits algebraically

--- WEEK 7 OCT 3-7

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**Monday-Thursday** All readings and exercises are in the *Calculus* text:

- Sec 1.5, p 60, in addition to #1-18 ALL, do #27-35 odd
- Read again Sec 1.6
- view these: Lots of limits part 1 (with overview of techniques)

and Lots of limits part 2 (skip over the limits at infinity for now; you'll see them in 24)

- Sec 1.6, p 70, do #1-31 odd (do as many as you can using the reading and video help); for class discussion, #44
  - By next week, getting ready for final, in Sec 6.3, p 438 do #3-11 all; #21-31 odd; 43, 47, 49-53
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WEEKEND OCT 7-9

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### Friday-Sunday

- I meant to give you this *definition* of vertical asymptote, which *formally* ties VA limit:

$x = a$  is a vertical asymptote of  $f(x)$  if the limit as  $x$  goes to  $a$  from either direction is  $+$  or  $-$  infinity

- The below video gives the same definition with several examples similar to what we did in class:

Vertical asymptotes

Lecture Notes: I re-uploaded above any that disappeared; here are the latest:

Lecture notes week 5 Lecture notes week 7 part 1 and Lecture notes week 7 part 2


- Complete the WebAssignments by tonight, please. Continue working out the limit exercises. If WA asks for limits at infinity, you may omit those, but let me know.
- Start working on Math 223 Fall 2015 Final and Math 223 Fall 2016 Final for practice
- Read Sec 1.8, continuity

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## WEEK 8

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- Wednesday class will be at this Zoom link
- View Limits and continuity
- In Sec 1.6, p 70, do these further limit exercises #33, 44\*, 45, 51, 54\*
- In Sec 1.8, do continuity exercises #3, 7-27 odd, 39-48 all, #54-58 all
- You may like a complete overview of limits, view Intro to limits, Properties of limits (kind of tedious, but some good examples), and Determining limits

 On Friday you'll have a Math 223 skills quiz. Today, Wednesday, is the zoom class.

**Wednesday** Here is Today's zoom lecture recording

Besides studying for the final exam, prepare for the Math 223 skills quiz on Friday, which will be these topics:

1. Domain of function
2. Essential graphs, including graphing an absolute value transformation (like we did today)
3. Factoring, including special factors
4. Evaluating trig expressions
5. Evaluating log and exponential expressions
6. Finding intercepts of circles and parabolas
7. Basic limits

Practice quiz page 1

Practice quiz page 2

Key to practice skills quiz page 1

Key page 2

Key graphs

Lecture Notes (recent) from Rui

## Sunday Oct 16

Solutions to Fall 2015 final

Solutions to Fall 2016 final

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WEEK 9 HERE IS WHERE MATH 224 BEGINS

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**Monday** Review limits and continuity homework, readings and videos. For the new folks, here was the WEEK 8 homework. For the continuing students, this is a good time to go back and do the text exercises you might have 'missed'

- Read in *Calculus* Secs 1.5 and 1.6; for more detail see *Precalculus* Secs 13.1 and 13.2
- View Finding limits numerically and graphically and Finding limits algebraically
- Do Sec 1.5 p 60, #1-18 ALL, do #27-35 odd and Sec 1.6, p 70, do #1-31 odd, #33, 44\*, 45, 51, 54\*
- View these: Lots of limits part 1 (with overview of techniques)

and Lots of limits part 2 (skip over the limits at infinity for now; you'll see them in 24)

Lecture Notes: I re-uploaded above any that disappeared; here are the latest:

Lecture notes week 5 Lecture notes week 7 part 1 and Lecture notes week 7 part 2

- Read Sec 1.8, continuity
- Do Sec 1.8 exercises #3, 7-27 odd, 39-48 all, #54-58 all

**NEW** Link to Warm-up and flip videos for Math 224 which I will explain in class tomorrow how to navigate.

**Wednesday** Reminder: All readings and exercises are in Stewart *Calculus, 9th ed.* e-book on the Cengage site

1. View rest of Limit of a function, started in class, and Detail of limit of  $\sin(x)/x$  as  $x \rightarrow 0$
2. If you are not on solid ground with inequalities and absolute values, read Appendix A in *Calculus* e-book
3. Read Sec 1.4 and view Tangent and velocity problem
4. 🤖 Write up to hand in:

- Find the instantaneous rate of change (IROC) of  $f(x) = \sqrt{x}$  at  $x = 1$ . (This is the  $a$  value.) Do this by using the detailed formula for finding IROC at  $x = a$  and showing all the work that gets you to the numerical answer. It's a limit problem.
- Draw an *accurate* sketch of this function, and indicate with two secant lines arbitrary through the curve at  $a = 1$

and  $a + h = 1 + h$

- Write a sentence about the most interesting thing you learned or were reminded of today in class (about mathematics, I mean, though feel free to share other new things you'd like to share)

### Friday

- Do exercises in Sec 1.4 and do exercises #3, 5, 7 (video and reading in Wednesday homework)
  - View Derivatives as rates of change
  - Read Sec 2.1
  - Do exercises #15, 17, 19, 23, 27
  - View these important Kazmierczak videos. They are largely review of limits, but without this understanding, the development of derivative has no framework (the first and last I have posted before).
1. Sec 1.4 Tangent and velocity problem
  2. Sec 1.5 Limit of a function
  3. Sec 1.6 Calculating limits using limit laws
  4. Sec 1.8 Continuity
  5. Sec 2.1 Derivatives as rates of change

And finally, something we looked at on Friday, but take another look! It will help you soon: Trigonometric limits

- First set of WebAssignments, due next week; *please do before the due date so you don't miss 8 a.m. posted time:*

CLASS WARM-UP: Section 1.4 Monday Oct 31, 8 a.m. (before class)

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WEEK 10

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CLASS WARM-UP for Section 2.1 Wednesday Nov 2, 8 a.m. (before class)

### Monday-Tuesday

Read Sec 2.2 and view the videos therein as well as:

Sec 2.2 Differentiation formulas

**Wednesday** I moved WebAssign Warmup Sec.2.3 to Saturday night Nov 5; you have Sec 2.4 Warmup on Monday.

- Here are Mon and Wed lecture notes from Rui
- From p 125 of Sec 2.2, "How can a function fail to be differentiable?" We looked a bit at this. The graph of function fails to be differentiable at points where either we can't establish a tangent line (corners and cusps - think absolute value function at  $x = 0$ ); at points of discontinuity (kind of obvious); and at a point where the tangent line is vertical, hence its derivative undefined (e.g. cube root function).

- Friday: 2-question quiz: something like #15 and #17 (interpreting a graph); something like #27-30 (equation of line tangent to polynomial curve at a given  $x$ , use power rule to determine derivative)
  - *To hand in Friday with the quiz:* Sec 2.2, #26 use definition of derivative (NO SHORTCUTS--an LCD will be needed)
  - Continue reading in *Calculus*, Sec 2.2; do Exercises #3, 7, 11, 13, 15
  - View these: Position, velocity, acceleration--nice! and Sec 2.3 Power rule
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## WEEKEND NOV 5-6

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- See the SKILLS TEST NEWS from the Director, Professor Kazmiercak
- Do Sec 2.3 Derivative rule exercises #1-49 every other odd (#1, 5, 9, 13, etc.) #59, 63, 67, 83, 87
- \* Read App D and Sec 2.4, trigonometry review and trigonometric function derivatives
- View Derivatives of trigonometric functions
- **Next WebAssigns** I gave you a bit more time for Sec 2.3 Warmup. Moved the Practice Skills Test 1 to where you can see it in the WA current list.

CLASS WARMUP Sec 2.3 due 11-6-22 Sunday night

CLASS WARMUP Sec 2.4 due 11-7-22 Monday morning

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## WEEK 11

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### Monday

WebAssignments: Sec 2.2 due Nov 8 Tuesday night

CLASS WARMUP Sec 2.5 due Nov 9 Wednesday morning

*For practice:* WebAssign Skills Test 1. We've covered all the material. Have questions to ask in class!

- Do Sec 2.4 trig derivatives p 154 #3, 7, 8, 13, 16, 23, 25, 39, 35, 37, 41, 45 (try also #47, 51)

### Wednesday

#### TWO ANNOUNCEMENTS:

NO LIVE LECTURE TODAY, WEDNESDAY. Lecture will be recorded and posted this evening for your required viewing.

Ms Debra Levy at Cengage asks me to have you write to her directly [debra.levy@cengage.com](mailto:debra.levy@cengage.com), if you have enrollment problems or other technical issue. She fixes things efficiently.

## ASSIGNMENT

### **Thursday**

- View my recorded lectures:

Nov 10 part 1

Nov 10 part 2

- Read (already assigned Monday night) Sec 2.5 and view Chain rule
- Do Sec 2.5 chain rule p 162 #1, 3, 5, 9, 16, 18, 21, 34, 37, 45, 53, 51, 67

### **Friday to Sunday**

- MIDTERM IS WEDNESDAY! Do the Fall 2016 midterm and have questions ready for Monday. Skip the question on intermediate value theorem. If you have no questions, I will proceed with the lecture on new material, except for...
- ... Rui's question on trig limits in class. She was referring to  $\lim_{x \rightarrow 0} \frac{\sin(ax)}{bx}$ . Or,  $\frac{\sin(ax)}{\sin(bx)}$ . Thanks, Rui, for asking! She does the exercises. Which translates into high test marks, as I draw from them for the exams I write. We'll discuss both these types of limits.
- I *did* prove the chain rule on my video with  $f(u(x))$  notation! WATCH MY 2 RECORDED VIDEOS (required for Wed attendance) and Prof Mosely on chain rule. The real world scenario is motivating!

On Sunday I'll check Panopto for your viewing time and ask a sneaky question to see if you didn't just leave it running and go to the kitchen.

- We start *implicit differentiation* on Monday (not on midterm). Read Sec 2.6 and see Dr Kazmierczak explain Implicit differentiation

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## WEEK 12

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**Monday** The old exam I posted is actually the Fall 2016. Here it is again as well as solutions. And below it, the Spring 2016 midterm and solutions.

Fall 2016 midterm and Solutions

Spring 2016 midterm and Solutions

**Tuesday** I reserved the big room down the hall from my office, WH Room 227, for office hours, 1:30-3:30. That was the window I could get, so be sure you come sometime in that window with questions.

**Wednesday-Thursday** View Implicit differentiation and read Sec 2.6

WebAssign CLASS WARMUP for Section 2.6 due by class time Friday

WebAssign CLASS WARMUP for Section 2.7 due by class time Monday

Weekend homework in text will be posted Friday

### Friday-Sunday

- Implicit differentiation (ID) lets us find  $dy/dx$  even when  $y$  cannot be expressed as an explicit function of  $x$  (or other relevant IROC, such as a related rate)

View helpful ID video 1 and ID video 2

\* Do Sec 2.6 exercises #3, 4, 7, 11, 17, 21, 25, 29, 31, 39, 41

- 🤖 In-class quiz on Monday (inspired by above exercises)
- Read Sec 2.7 and view motion videos (rates of change in science, and with deeper focus on motion):

1. Interpreting motion graphs--basics
2. Interpreting motion--example

Do Sec 2.7 exercises #1, 3, 9, 17, 21

WEBASSIGN CLASS WARMUP Section 2.6 due Sunday night

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WEEK 13 THANKSGIVING WEEK

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**Mon-Fri** The following work is *not to be ignored* over the break!

- Read Sec 2.8 Related Rates and view:
  1. Related rates 1 (Dr Kaz)
  2. Area of a circle example
  3. Another circle example
  4. Sliding ladder example
- Do Exercises #9, 13 (these are practically the same as the sliding ladder problem) and #2 (circle, see last video)
- WEBASSIGN CLASS WARMUPS have been extended. PLEASE do them before the time runs out.

### Friday-Sunday

Recent lecture notes (mine)

Here [20221209172236112.pdf](#) is a Brief lecture on rates of change in science, but at the start I do an exercise from Stewart on implicit diff'n as well.

The final sections we will cover are Secs. 3.1, 3.3, 3.4, 3.5 (Sec 3.2 is covered in Math 225)

View Finding critical numbers of a function and local max and min

Finding absolute max and min of a fcn on a closed interval

Read Sec 3.1 and try textbook exercises: Sec. 3.1 #1, 3, 9, 11, 17, 18, 31, 35, 41, 45, 51, 59

NOTE: Skills Test 2 begins Nov 28. It covers trigonometric derivatives, chain rule, and implicit differentiation. You have until Dec 9, to take all 3 attempts.

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## WEEK 14

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### Monday-Tuesday

- Read 3.3
- Continue Sec 3.1 exercises.

(I didn't do absolute extremes today, only local, of which there is more to say about the first derivative test for local maxima and minima, as demonstrated in class today, but not named as such. Much more on this soon.)

- Webassign 3.1 warmup due Wed morning
- Webassign 3.3 warmup due Wed night
- View First derivative add shape of a graph and Second derivative and shape of a graph

### Wednesday-Friday

- Webassign 3.4 warmup due Friday morning
- Do Sec. 3.3 #1, 4, 11-14, 15, 17, 20, 21, 27, 43, 49, 62, 63
- My handout summary (used in class today) of Curve sketching with calculus
- Today's recorded remote class

**Thursday note** I was looking at the exercises I mentioned in lecture yesterday, and I meant to assign #18 in obht Sec 2.7 and 2.8. The first #18 is interesting because its derivative is linear, but it will be good to see how it relates to absolute max and min!

Hold off on Sec 3.3 till I decide on two good ones.

### Weekend assignment

- View How to sketch a curve
- In place of Dr Kazmierczak paper assignment, you are doing this one, to hand in Monday: HW Quiz 5\*.

\* I forgot to add identify any vertical and horizontal asymptotes. Please do so by using the limit definitions if they apply.

We will use Dr. Kazmaierczak's for curve sketching review this week.

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WEEK 15 😊

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## Monday

I was looking at Stewart solutions manual, and I notice it has slightly different problems (actually, the same, but different numbering, some of them). They are from an earlier edition. So after my class tonight I will match them up and post pics of many I like including the ones you did.

For homework, be sure you have read through Sec 3.5 (but skip Sec 3.2)

On Wednesday I will go over the Kazmierczak problems (not to hand in) and we will do a selection of Stewart problems on limits at infinity, from Sec 3.4 (no hw on those tonight, but catch up if you need to on WebAssign).

## Wednesday-Friday

Sec 3.4 exercises #7, 8, 13, 17/18 (limits at infinity)

Recent notes through Friday part 1 and part 2

Previous exam (2016) with solutions

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