Exam II will take place on Monday, Feb. 28. Remember that this is a timed exam, so you should have enough practice with all concepts in order to work in a timely fashion!

If you need help, please come and see me in my office. I have added extra office hours on Wednesday from 2:30-3:30 in addition to my usual office hours (MWF 11:30-12:30, W 1:30-2:30 and Friday 1:30-2). Also, remember that the Mathematics Tutoring Room is open and ready to help you!

Exam II will cover chapter 2. In addition to the main topics, please make sure that you:

- Review all homework problems
- Review all quizzes
- Review all class notes and handouts

Also,

- Make sure that you bring your calculator to the exam.
- Make sure that you bring a straight edge to the exam. Note that you may not use a piece of paper or anything that you can write on for your straight edge.
- Leave all backpacks, notes, etc. at the front of the classroom for the duration of the exam
- Sit in alternating seats wherever possible

In particular, make sure that you know the following topics. Note that these are general headings only, and that there may be other topics that we covered and that could be on the exam.

- Choosing the best model for data. This is not being explicitly tested, but, similarly to the homework, you should know how to do this still.
- Change, percentage change, and average rates of change: from a graph, from data, from a model, from a formula. Also, the ideas behind it. Also, the units on your answer.
- Instantaneous rates of change: from a model or formula. Also, the ideas behind it. Also, the units on your answer.
- What it means for a graph to be continuous and/or smooth.
- What a tangent line means. And what it tells us.
- Where a derivative does not exist (sharp points etc. – see ex. N in section 2.2)
- Slope of tangent at a point = derivative at a point = instantaneous rate of change at a point = slope of curve at a point = rate of change at a point.
- Finding when slopes of tangents (i.e. derivatives) are positive, negative, zero, or do not exist.
- How to find a tangent line to any curve by using your straight edge. **Note: you do need to be very careful with how precisely you draw your tangent lines.**
- The relationship between concavity at a point and where the tangent line is drawn (concave up: tangent line is below the curve etc.)
- Local linearity – what this means (in English)
- The relationship between secant lines and tangent lines (note: we first looked at this on page 7 of the section 2.2 handout and then revisited it for the last two problems of section 2.3)
- Derivative notations: in general and at a point.
- Using derivatives and values at a point to estimate the function at a different point (ex: problems F and G in section 2.3)
- How to interpret derivatives within the context of the problem
- Drawing graphs from the information. (Ex: problem E in section 2.3)
- Comparing rates of change
- Percentage change and percentage rates of change and units on your answer.
- Finding slopes by the numerical method (i.e. using your calculator to spot a trend, end of section 2.3) and then interpret your answer.
- Finding slopes by the algebraic/calculus method at a point – the four step method (From 2.4) and then interpreting your answer.
- Finding derivatives by the algebraic/calculus method – the general four step method (2.4) – it is possible we might not get to this before the exam.

Good luck! I know you will all do beautifully!