EXAM 1 IS THURSDAY IN QUIZ SECTION

Allowed:

1. A **Ti-30x IIS Calculator**
2. An 8.5 by 11 inch sheet of handwritten notes (front/back)
3. A pencil or black/blue pen (and a ruler)

Details and rules:

1. 4 pages of questions, 50 minutes, use your time effectively.

2. **Show your work using methods from class.** The correct answer with no supporting work is worth zero points.

3. Clearly indicate work you want graded. Put a box around your final answers.

4. No make-up exams; if you are physically unable to be at the test, go to doctor and get documentation (and your grade will be prorated)

5. There are multiple versions of the test!!!! They will look similar. If you copy off of a classmate we will know and we will report to the student misconduct board (and you'll get a zero on the entire test). So don't sit next to your study partners and don't be tempted to copy off a classmate.

Quick Review (Checklist)

1. Be able to find, compute and interpret these:
   $f(x)$, $\frac{f(b)-f(a)}{b-a}$, $\frac{f(x+h)-f(x)}{h}$, $f'(x)$
2. Find and interpret "slopes of secant lines" (average rates) and "slopes of tangent lines" (instantaneous rates).

3. Be able to find *the equation for a line*, and specifically *the equation for a tangent line.*

4. Know your derivative rules well (product, quotient, chain and power rules).

5. Be able to find the second derivative.

6. Be able to solve linear equations, and quadratic equations and be comfortable with basic algebraic manipulations (add/subtract, mult/divide, powers/roots).

7. Know the connections between the graph of $f(x)$ and the graph of $f'(x)$. Namely:
   "f(x) increasing (uphill)" is the same as
   "f'(x) positive (above x-axis)"

   "f(x) decreasing (downhill)" is the same as
   "f'(x) negative (below x-axis)"

   "f(x) horizontal tangent (peak/valley)" is
   "f'(x) zero (crosses x-axis)"

8. Know the applications we have discussed:
   - TR/TC, MR/MC, and profit.
   - Height of a balloon and rate of ascent.
   - Distance and speed.

   Note: In several of these applications we observed that when the derivatives of two different functions crossed (MR=MC or Rate of Ascent graphs equal), then the original function were farthest apart.