Welcome To Math 34A!
Differential Calculus

Instructor:
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Office Hours:
   Mondays 2–3PM Not Today!
   Tuesdays 10:30–11:30AM
   Thursdays 1–2PM
   or by appointment

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Math 34A is about. . .

- Problem-solving using reasoning
- Turning English into Math (and vice versa)

Math 34A is not about. . .

- Memorizing formulas
- Rote computations

Math Magic Trick!

1. Pick a whole number (positive, integer)

2. Multiply it by 3, then add the digits together (repeatedly) until you get just one digit

3. Repeat the previous step: multiply by 3, then add until you have one digit

4. Subtract 5

5. Convert your number to a letter:

$$1 \to A \qquad 2 \to B \qquad 3 \to C \qquad 4 \to D \qquad \text{etc}$$

6. Think of a country starting with your letter

7. Think of an animal starting with the last letter of the name of your country

I Sense. . .

Do You Have An i>clicker?

A = Yes, B = No,   C = How Does This Even Work?

Everything Is On GauchoSpace

See https://gauchospace.ucsb.edu/

- Syllabus
- Homework:
  - On WeBWorK (link on GauchoSpace)
  - Due before every lecture (usually 7am)
  - First one is due Wednesday, April 5th!
- Information about discussions and TAs
- Dates of midterm exams and final exam.
  - First midterm is April 19th! (Yikes!)
- Grading system
- A link to sign up with CLAS = Campus Learning Assistance Services

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- **Great Effort Rule:** If you get a grade of C, C+ or B−, it will be automatically increased to a B, but only if you make a great effort. This means:
  - Come to all classes (and i>click!)
  - Come to all discussion sections (and take quizzes!)
  - Do (seriously attempt) all the homework.
  - Take all exams.

- Purpose of the class: Solving new problems you haven't seen before.
  - Use reasoning.
  - This is very difficult.
  - Memorizing formulas is silly.
  - Word problems are the point.

Problems!

1. Solve for x: $4x + 7 = 12$

$\qquad$ A $= 3$ $\qquad$ B $= 6$ $\qquad$ C $= 5/4$ $\qquad$ D $= 19/4$ $\qquad$ E $= ?$

Answer: $\boxed{\text{C}}$

2. Solve for x: $ax + b = c$.

$\quad$ A $= c/a$ $\qquad$ B $= bc/a$ $\qquad$ C $= (c+b)/a$ $\qquad$ D $= c-b/a$ $\qquad$ E $= (c-b)/a$

Answer: $\boxed{\text{E}}$

More Problems!

3. Solve for x: $2x + 7 = ax + k$

$$A = (2 - k)/(a - 7) \qquad B = (k - 7)/(2 - a)$$

$$C = (k - 7)/(a - 2) \qquad D = k - 7/a - 2 \qquad E = ?$$

Answer: $\boxed{B}$

4. Expand: $(1 - x)(1 + x + x^2)$

Moral: Parentheses Rock!

Word Problems!

4. The sum of three consecutive numbers is 99. What are the numbers?

Answer: 32, 33, 34

5. Twice one number is three times another number. The sum of the two numbers is 110. What are the numbers?

Answer: 66, 44

6. The perimeter of a rectangle is twice its area. Find a formula for the length of the rectangle in terms of its width.

Answer: $L = \frac{W}{W-1}$

Waitlist / Crashers

- All approval codes are controlled by the Math Department
  - Before Friday, April 7th:
    - Automatically done from waitlist through GOLD.
    - Approval codes emailed.
    - Approval codes are not currently available.
  - April 8th to April 21st (last day to add)
    - Only students on waitlist and crashing!
    - Approval codes mailed Thursdays: 4/13 and 4/20.
    - You have 24 hours to add.

- If you're crashing, please sign my crashers' list!