# Welcome To Math 34A! Differential Calculus


## Instructor:

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## Office Hours:

To Be Announced

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:

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

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 8:00 am)
  First one is due Wednesday, January 8th! (Mon 1/13 OK)
- Information about discussions and TAs
- Dates of midterm exams and final exam.

  First midterm is Wednesday, January 22nd! (Yikes!)
- Grading system
- A link to sign up with CLAS = Campus Learning Assistance Services

# Everything Is On GauchoSpace

See `https://gauchospace.ucsb.edu/`

- 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 $x$: $4x + 7 = 12$

(A) 3 (B) 6 (C) $5/4$ (D) $19/4$ (E) ??

Answer: C

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

(A) $c/a$ (B) $bc/a$

(C) $(c + b)/a$ (D) $c - b/a$ (E) $(c - b)/a$

Answer: E

# More Problems!

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

(A) $(2 - k)/(a - 7)$ (B) $(k - 7)/(2 - a)$

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

Answer: B

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

Answer: $1 - x^3$

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**

  Through Friday, January 10th:
  - Automatically done from waitlist through GOLD.
  - Approval codes are not currently available.

  January 13th to 27th (last day to add)
  - Only students on waitlist and crashing!
  - Approval codes mailed Thu 1/16 through Mon 1/27
  - You have 24 hours to add.

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