

# Welcome To Math 34A!

## Differential Calculus

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### Office Hours:

To Be Announced

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Please do not distribute outside of this course.

Math 34A is about...

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

Math 34A is **not** about...

- Memorizing formulas
- Rote computations

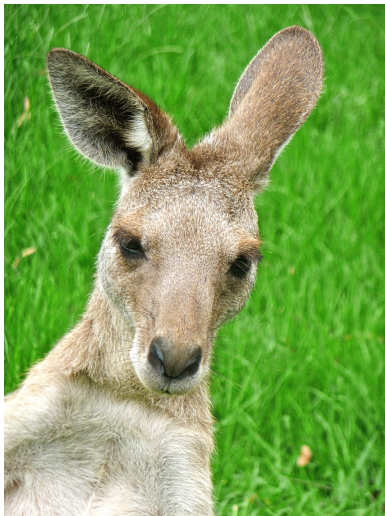
# Math Magic Trick!

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:

$1 \rightarrow A$        $2 \rightarrow B$        $3 \rightarrow C$        $4 \rightarrow D$       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!