Lecture note 35 (Dec 1, 2017)
"Good luck with the final Exams"

- Homework #7 solution will be posted on Monday.

- Please complete the survey:
  - MAPS → Deadline Dec 1 (Today)
  - Course evaluation → Deadline Dec 3 (Monday)

**Important**

I’ll email you to update the following:

- Office hours
- Exam Review + Solution

There are a few problems in Final Exam 2015 and 2016 that we do not cover.

- Email me if you have any questions
- Come to office hours before the final exam
Grading:

Final Exam → 50%
Midterm Exam → 20%
Quizzes → 15%
   best four → 4 x 3.75%
Homework → 10%
   HW1  HW2  HW3  HW4  HW5  HW6  HW7
     best five x 1.5% → 2.5%
Lab → 5%
   best 10

If you attended to all labs (11),
you will get 5.5%.
Example from last lecture: Find all \( b \) such that \( \int_0^b (2x+3) \, dx = 4 \).

We first compute the integral

\[
\int_0^b (2x+3) \, dx = x^2 + 3x \bigg|_0^b = (b^2 + 3b) - (0^2 + 3(0)) = b^2 + 3b.
\]

Fundamental Theorem

On the other hand, we know

\[
4 = \int_0^b (2x+3) \, dx = b^2 + 3b \quad \text{(given)} \quad \Rightarrow \quad b^2 + 3b - 4 = 0
\]

\[
\Rightarrow \quad (b-1)(b+4) = 0
\]

\[
\Rightarrow \quad b = 1 \quad \text{and} \quad b = -4.
\]
Example 1: Graph a function \( f(x) \) that satisfies
\[
\int_{-2}^{2} f(x) \, dx = 0.
\]
Area under \( f(x) \) between -2 and 2.
So, we need to have same area above and below the \( x \)-axis.
one more example: $f(x)$ satisfies $\int_{-2}^{2} f(x) \, dx = 0$ and $\int_{-2}^{4} f(x) \, dx > 0$.