Math 131 Homework: Day 6

☕ Practice

1. **a)** ℹ️ Read 5.3 on the Fundamental Theorem of Calculus. The Fundamental Theorem of Calculus (FTC) is, well, fundamental and makes the calculation of Riemann Integrals easy. The key is the Mean Value Theorem (MVT). We will cover FTC I, next class.

   b) Make sure you **memorize** the Fundamental Theorem of Calculus II.

   c) ✍ Use the FTC to quickly determine the answers to the following problems. Page 346–7: #23, 25 (multiply out first), 27, 33–39 (odd), 41, 43, and 47. Remember, *net area* is signed area, so area below the axis is negative. Area is always positive, so area below the axis counts as positive area (you need to change its sign).

☞ Due Wednesday

0. Start early! Do the WeBWorK assignment Day06 (Due Wednesday night.)

1. Use the FTC II to evaluate the definite integral: Page 346 #24.

2. Use the FTC II to evaluate the definite integral (sketch region): Page 346–7 #26, 30.

3. Page 347 #32, 34(multiply out first), 36, 40(divide first).

4. Evaluate $\int_0^2 \sec^2(\frac{\pi x}{8}) \, dx$.

5. Bonus Credit: Evaluate $\int_3^6 \frac{12}{\sqrt{36 - x^2}} \, dx$. Give an exact answer.