Lesson 31: The Fundamental Theorem of Calculus

- 1. Evaluate $\int_{-2}^{-1} \frac{1}{x} dx$.
- 2. Evaluate $\int_3^8 \sqrt[3]{x} \, dx$.
- 3. Evaluate $\int_0^{50} -10x + 10 \, dx$.
- 4. Evaluate $\int_{10}^{20} e^x 16 \, dx$.
- 5. Evaluate $\int_0^{2\pi} -2\sin x \, dx$.
- 6. Find the area bounded by the curves y = 0, y = 2x, x = 1, x = 2.
- 7. Find the area bounded by the curves y = 0, y = -2x + 4, x = -8, x = -5.
- 8. Find the area bounded by the curves y = 0, $y = (x+1)^2$, x = 1, and x = 4.

Answers:

- 1. $-\ln(2)$
- $2. \ 12 \frac{9\sqrt[3]{3}}{4}$
- 3. -12,000
- 4. $e^{20} e^{10} 160$
- 5. 0
- 6. 3
- 7. 51
- 8. 39