**REVIEW FOR FINAL EXAM:**

- See Reviews for Exam I and Exam II.
- Be able to:
  - Compute the area between two curves
    \[ \text{area} = \int_a^b f(x) - g(x) \, dx \]
    
  \[ \text{§13.3 #1-4} \]

  - Interpret such an area in the context of MR/MC
    \[ \text{area} = \int_0^m (\text{MR}(q) - \text{MC}(q)) \, dq = P(q) + FC \]
    
  \[ \text{§13.3 #5,7} \]

  - OR speeds
    \[ \text{area} = \int_m^t (\text{alt}) - b(t) \, dt = \text{dist between cars @ time } t \]
    
    \[ \text{§13.3 #6} \]
1. Compute total income from formula for income flow:

\[ \text{rate} = f(t) \quad \$ \quad \text{yr} \]

2. Total income after a year:

\[ \text{total income after a year} = \int_0^a f(t) \, dt \]

Often involves an exponential function of \( f(t) \) — make sure you plug in both endpoints!

3. Compute consumer's and producer's surplus:

\[ \text{CS} = \int_0^b f(x) \, dx - g \cdot f(b) \]

\[ \text{PS} = g \cdot g(b) - \int_0^b g(x) \, dx \]
Act 8. Evaluate and compute rates of change of multi-variable functions

§14.1 #1-7

Act 9
§14.2 #1-6
. Compute partial derivatives

§14.2 #7-10
. Interpret partial derivatives in context

14.3 #1-6
. Use partial derivatives as slopes

§14.2 #11-17
. Find critical points of multi-variable functions

§14.3 #16-16