Functions in One Variable $\mathbb{R} \rightarrow \mathbb{R}$

Function
- Domain, Range, Graph
- Composition of Functions
- Inverse Function

Limit and Continuity
- "ε, δ" Definitions
- Limit, Basic Techniques, Application: Asymptote
- Continuity $\Rightarrow$ Intermediate Value Theorem ($\Rightarrow$ Bisection Method)

Differentiation
- Definition of Derivative, Product/Quotient rule
- Derivatives of Basic Functions (power fnt, exponential, logarithmic, trig functions)
  - Chain rule
  - Derivative of inverse function
  - Linear Approximation
- Concavity, Extrema, Graph
  - Rolle’s Theorem
  - Mean Value Theorems
  - Convert to $\frac{0}{0}$ or $\frac{\infty}{\infty}$ form to apply

Integration
- Anti-derivative/Indefinite Integral and Techniques
  (Substitution, Integration by Parts, Partial Factions, ···)
- Riemann Sum, Definite Integral, Fundamental Theorem of Calculus
  - Limit of Finite Sum $\leftarrow$ Definite Integral
  - Applications of Definite Integral (Area, Arc Length,
    Volume and Surface Area Of Revolution, Center Of Mass, Inertia)
- Improper Integral