- ***Sequences and Series***
  - **Tests for Convergence**
    - Integral test
    - P-series
    - Upper bound practice
    - Comparison test
    - Limit comparison test
    - Ratio test(D'Alembert's Test)
    - Alternating Series Test(Leibniz's test)
  - **Error Bounds**
    - For alternating series
    - Absolutely/Conditionally convergence
  - **Series**
    - Power Series
      - Interval of convergence
      - Radius
    - Taylor Series for Function of one Variable
    - Binomial Series
    - Exponential and Logarithmic series for function
    - Trigonometric series for function
  - **Operation of Series**
    - Differentiation
    - Integration
    - Substitution
    - Basic operations
  - **Taylor Mean Value Theorem**
    - Using remainder to get homogeneous limit
  - **For Competition**

- ***Vectors and Matrices***
  - **Vectors**
    - Dot product
      - Area
      - Projection
    - Cross product
      - Area and volume
      - Operational rule
    - Cosines
    - Vector function and Derivative
  - **Matrix**

        - Linear equation
        - Transposition
        - Product
    - **Equations of Planes**
        - Vectors in the plane and normal vector
    - **Linear system**
        - Geometric meaning of the solution
        - Inverse and Adjoint matrix
        - Theorems of homogeneous and inhomogeneous

- ***Differential***
    - **Partial Derivative**
        - First-order and high-order expression
        - In graph
        - Linear to plane approximation
    - **Total Differential**
        - Expression for multi-variables
        - Chain rule(parameterization and compound function)
        - Polar coordinates
        - Arc and tangent vector
    - **Gradient and Directional Derivative**
        - Expression and Orthogonality of Gradient
        - Expression of directional derivative
        - Explain the gradient (change rate/direction)
        - Using the gradient to find the tangent plane
    - **Optimization**
        - Critical point
        - Get Extreme by second partial derivative
        - Constrained optimization
        - Lagrange Function and Multipliers
        - Optimization with more than one constraints
        - Optimization with inequality constraints
    - **Non-independent Variables**
        - Constrained differentials