Concepts:

• *Riemann sums*; estimations of areas under grahps using Riemann sums.

• *Definite and indefinite integrals.* Definition of the definite integral (as an area and as a limit of Riemann sums). Indefinite integral as the most general anti-derivative. Fundamental theorem of calculus. Connection between definite and indefinite integrals.

• *Areas.* Know how to estimate using Riemann sums and how to compute using definite integrals.

Techniques:

• Table integrals.
• U-substitution.
• Symmetry (odd/even functions).

Applications:

• Rectilinear motion and Falling body problems.
• Net change, displacement and distance.
• Areas between curves.
• Volumes: Disk/Washer method