

4.1, 4.2, 4.6 Formula Sheet:

Summation Formulas:

$$1) \sum_{i=1}^n 1 = n$$

$$2) \sum_{i=1}^n i = \frac{n(n+1)}{2}$$

$$3) \sum_{i=1}^n i^2 = \frac{n(n+1)(2n+1)}{6}$$

$$4) \sum_{i=1}^n i^3 = \frac{n^2(n+1)^2}{4}$$

$$5) \sum_{i=1}^n c\mathbf{a}_i = c \sum_{i=1}^n \mathbf{a}_i$$

Area using Limit Definition

$$\lim_{n \rightarrow \infty} \sum_{i=1}^n \left(\frac{b-a}{n}\right) * f\left(a + \frac{b-a}{n} * i\right)$$

$$\text{width} = \frac{b-a}{n}$$