

Reading Stewart §4.2 – 4.4.

1. Use the **limit definition of the definite integral**, i.e., the limit of Riemann sums, to compute

$$\int_1^4 (x^2 - 4x + 2) dx.$$

2. Compute $\int_1^4 (x^2 - 4x + 2) dx$ using the Fundamental Theorem of Calculus.

3. Use the **limit definition of the definite integral**, i.e., the limit of Riemann sums, to compute

$$\int_{-2}^0 (x^2 + x) dx.$$

4. Use the **Fundamental Theorem of Calculus** to compute the following definite integrals.

(a) $\int_{-2}^0 (x^2 + x) dx$

(b) $\int_4^{25} \frac{10}{x^2} + \sqrt{x} dx$

(c) $\int_{\pi/6}^{3\pi/4} \sin x + \csc^2 x dx$

(d) $\int_0^2 (t + 1)(2t - 1) dt$