

1. Write the sum  $\sum_{i=1}^4 \frac{i-3}{i}$  without sigma notation, then evaluate it.

2. Approximate the area under the graph of  $f(x) = 2x^2$  and above the  $x$ -axis from  $x = 0$  to  $x = 4$  using  $n = 4$  and the following methods.

(a) Using left endpoints.

(b) Using right endpoints.

(c) Using the midpoints.

3. Express the limit as a definite integral on the interval  $[2, 5]$ . (Do not solve the integral).

$$\lim_{n \rightarrow \infty} \sum_{i=1}^n \sqrt{x_i^2 - 2\Delta x}$$

4. Suppose that  $f$  and  $g$  are integrable. Find the integrals below using the following information:

$$\int_1^9 f(x)dx = -2, \int_7^9 f(x)dx = 10, \int_7^9 g(x)dx = 3$$

(a)  $\int_9^7 [f(x) - g(x)]dx$

(b)  $\int_1^7 f(x)dx$

(c)  $\int_7^9 [3g(x) + 2f(x)]dx$

5. Evaluate the following integrals.

(a)  $\int_{-2}^2 (x^3 - 2x + 1)dx$

(b)  $\int_0^4 (3 - 2x)dx$