

MEMORIAL UNIVERSITY OF NEWFOUNDLAND

DEPARTMENT OF MATHEMATICS AND STATISTICS

SECTION 2.2

Math 1001 Worksheet

FALL 2025

For practice only. Not to be submitted.

1. Express each of the following as a definite integral over the indicated interval $[a, b]$, where x_i^* is the sample point on the i th subinterval.

(a) $\lim_{n \rightarrow \infty} \sum_{i=1}^n \frac{2}{(x_i^* - 4)^2} \Delta x_i$ over $[6, 8]$

(b) $\lim_{n \rightarrow \infty} \sum_{i=1}^n \cos^3(5x_i^*) \Delta x_i$ over $\left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$

2. Use the limit of a Riemann sum to compute each of the following. (In each case, use a regular partition and let the sample point be the right endpoint of the i th subinterval.) Does the definite integral represent the area under the curve in each case?

(a) $\int_0^2 \frac{x^3}{4} dx$

(b) $\int_2^3 (2 - 7x) dx$