Section 4.3

1) Consider the region bounded by the graph of $f(x) = \sqrt[3]{x}$, the x-axis, the y-axis, and the line $x = 1$. Evaluate the limit

$$\lim_{n \to \infty} \sum_{i=1}^{n} f(c_i) \Delta x_i$$

where c_i is the right endpoint of the partition given by $c_i = \dfrac{i^3}{n^3}$, and Δx_i is the width of the ith interval.

2) Evaluate the definite integral $\int_2^6 5x \, dx$ using the limit process.

3) Sketch the region corresponding to each definite integral. Then evaluate each integral using a geometric formula.

   a) $\int_3^5 2 \, dx$

   b) $\int_1^4 (x - 1) \, dx$

   c) $\int_0^4 \sqrt{16 - x^2} \, dx$

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4) Find the following:

   a) $\int_{\pi/2}^{\pi/2} \cos x \, dx$

   b) $\int_4^1 (x - 1) \, dx$

   c) $\int_0^2 |x - 1| \, dx$

5) Assuming $\int_0^2 x^3 \, dx = 4$, $\int_0^2 3x \, dx = 6$, and $\int_0^2 5 \, dx = 10$, find

$$\int_0^2 \left(\frac{1}{3} x^3 + 3x - 5\right) dx$$

Homework for 4.3: #4, 11, 17, 27, 39, 41, 47