Lab Worksheet for October 11, 2021

Practice with Riemann Sum and Integrals.

1. Evaluate the following expressions.

a.) $\sum_{i=1}^{3}(2i+3)$

b.) $\sum_{i=2}^{5}(-2)^i$

c.) $\sum_{i=0}^{3} i!$

d.) $\sum_{i=5}^{7} \frac{i}{2}$

2. Use Riemann sum to approximate the area under the curves of the following functions:

a.) f(x) = x^2 on the interval [0,2]; use n = 4.

b.) f(x) = x^2 – 3x +1 on the interval [-1,1]; use n = 4.

c.) f(x) = -x^2 + 4 on the interval [-2,2]; use n = 4.

d.) f(x) = $\frac{x+1}{x^2-1}$ on the interval [2,4]; use n = 4.

3. Solve the following integrals.

a.) $\int_0^2 x^2 \, dx$

b.) $\int_{-2}^2 -x^2 + 4 \, dx$

c.) $\int_{-1}^1 x^2 - 3x + 1 \, dx$

d.) $\int_0^4 2x \, dx$