

Math 21B
Kouba
Worksheet 1

1.) Use the limit definition of definite integral to evaluate each of the following integrals. Use n equal subdivisions so that $\Delta x_i = \frac{b-a}{n}$ for $i = 1, 2, 3, 4, \dots, n$. Use right-hand endpoints for sampling points so that the sampling points are $x_i = a + \frac{b-a}{n} \cdot i$ for $i = 1, 2, 3, 4, \dots, n$.

a.) $\int_{-1}^2 5 \, dx$

b.) $\int_0^2 (x+3) \, dx$

c.) $\int_{-3}^0 (x^2 + 2x) \, dx$

d.) $\int_0^1 x^3 \, dx$

e.) $\int_0^1 2^x \, dx$

HINT 1 : $1 + r + r^2 + r^3 + \dots + r^m = \frac{1 - r^{m+1}}{1 - r}$.

HINT 2 : At some point you will need L'Hopital's Rule.