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

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

b.) $\displaystyle\int_{0}^{2} (x + 3) \ dx$

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

d.) $\displaystyle\int_{0}^{1} x^3 \ dx$

e.) $\displaystyle\int_{0}^{1} 2^x \ dx$

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

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