MATLAB HOMEWORK

made by Seungchul Lee

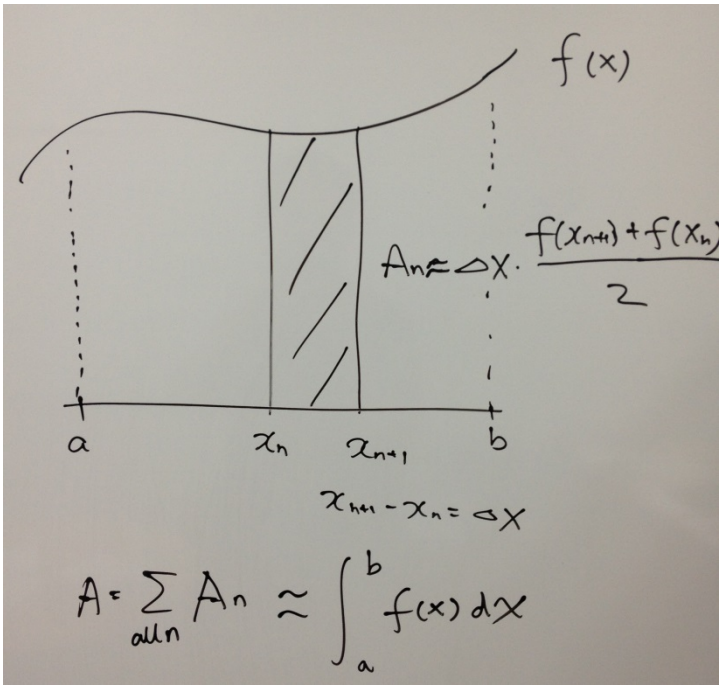
P1 We want to write m-code for calculating $S_n = 1 + \frac{1}{2} + \frac{1}{2^2} + \cdots + \frac{1}{2^n}$

1) S_n if $n = 5$

2) find a maximum value of n such that $S_n \le 1.999$

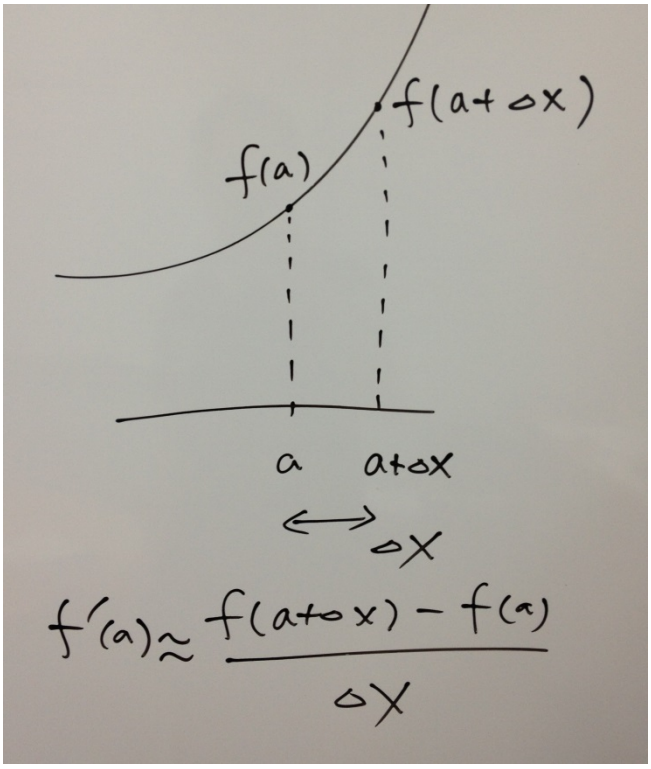
3) plot S_n with a function of n (≤ 10)

P2 We want to learn about how to numerically take an integral of the given function of $f(x)$.



Calculate $\int_0^{\pi} \sin x\,dx$ by using the idea shown in the above figure.

P3 We want to learn about how to numerically take a derivative of the given function of $f(x)$.



Calculate $\left.\frac{d \sin x}{dx}\right|_{x=0}$ by using the idea shown in the above figure.