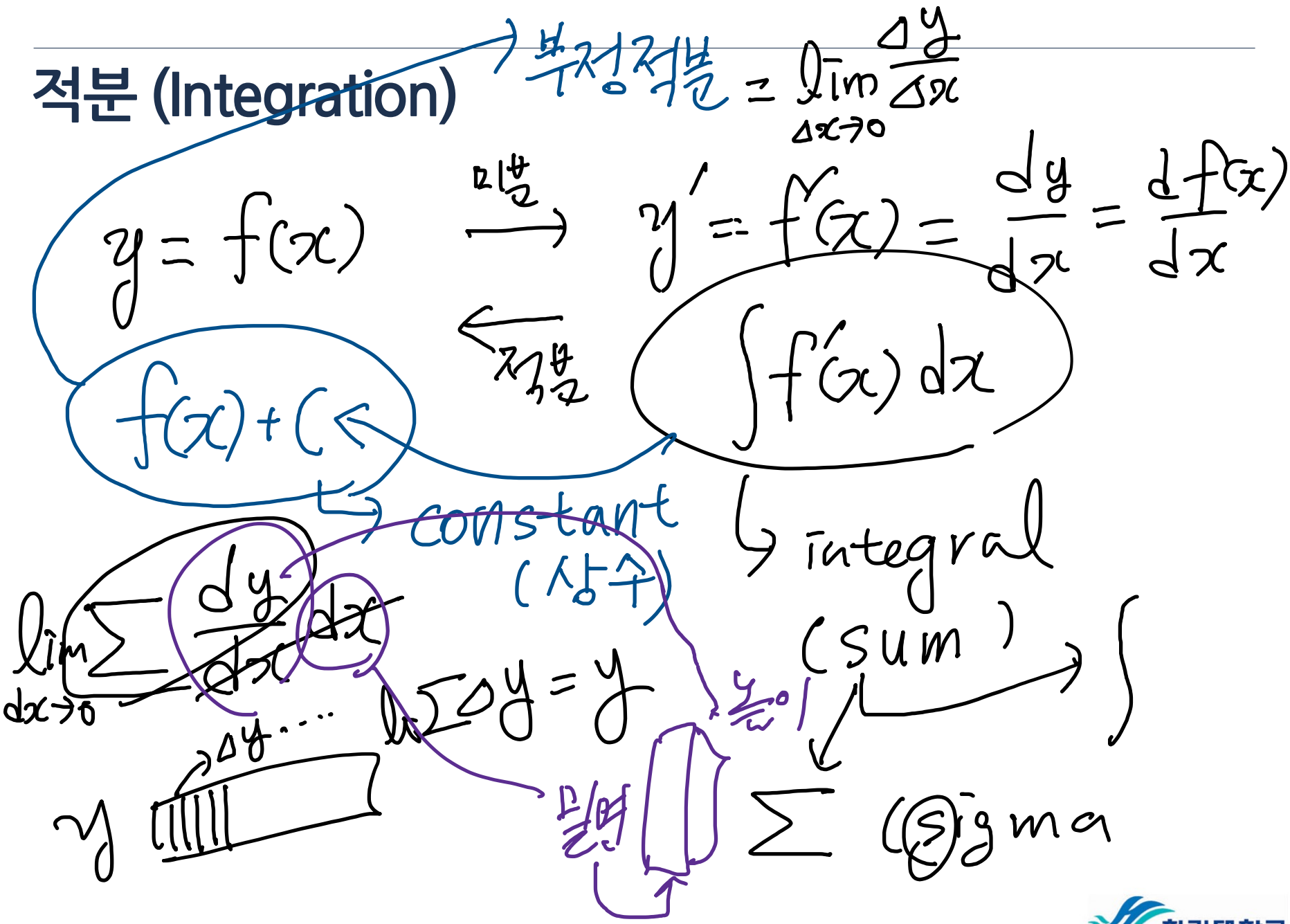
한림대학교
HALLYM UNIVERSITY

데이터구조와컴퓨팅 15주차

❑ 한 준 희

적분 (Integration)



복정

적분 (Integration)

$y = x$ $\xrightarrow{\text{미분}}$ $y' = 1$

$x + C$ $\xleftarrow{\text{적분}}$ $\int 1\,dx$

↳ 상수

$y = x^2$ $\xrightarrow{\text{미분}}$ $y' = 2x$

$x^2 + C$ $\xleftarrow{\text{적분}}$ $\int 2x\,dx$

$(x+1)' = 1$

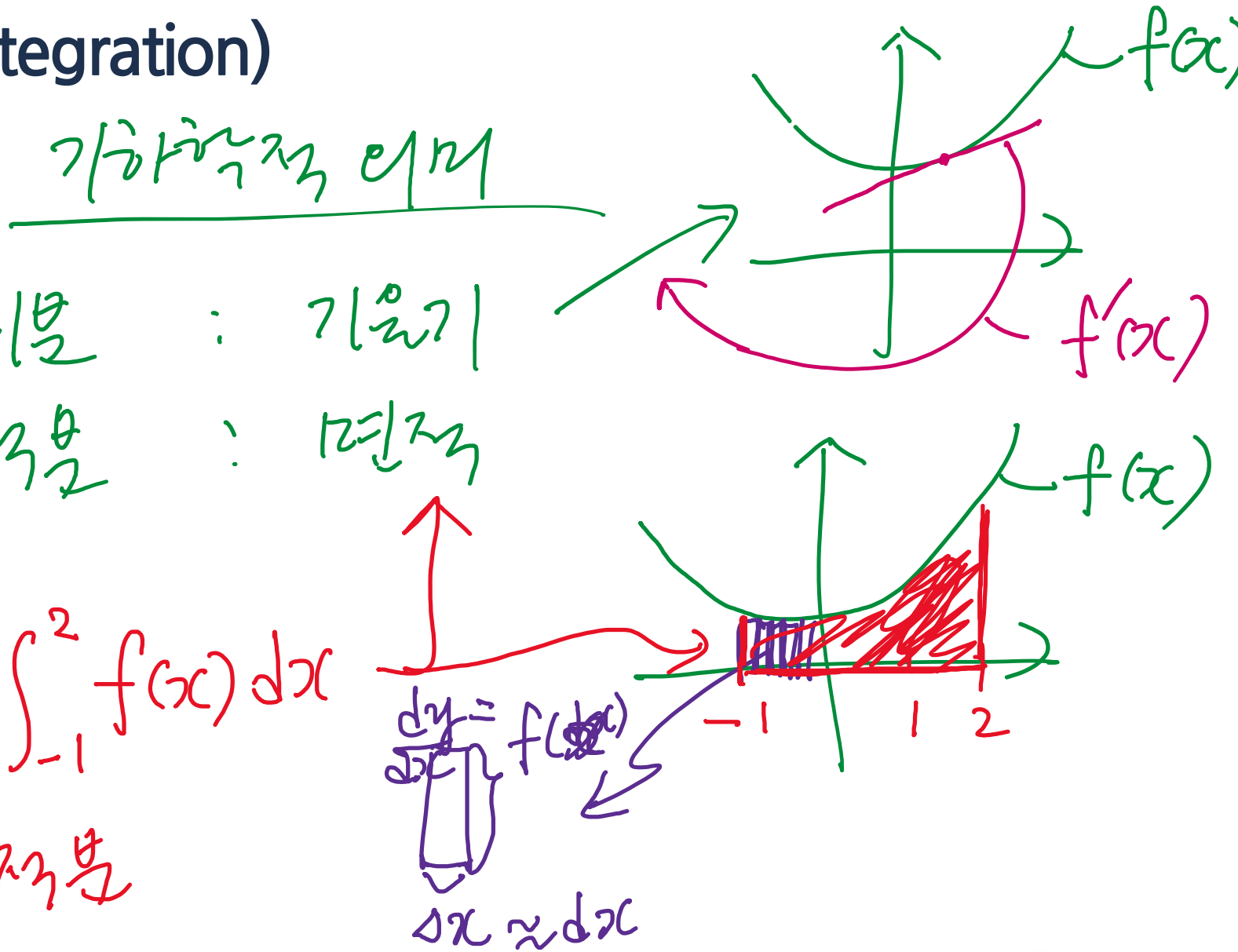
$(x+2)' = 1$

$(x+C)' = 1$

$y = \sin x \rightarrow y' = \cos x$

$\sin x + C = \int \cos x\,dx$

적분 (Integration)



정적분 (Integration)

$y = x$ —미분→ $y' = 1$

$x + C$ ←적분— $y' = 1$

↳ 상수

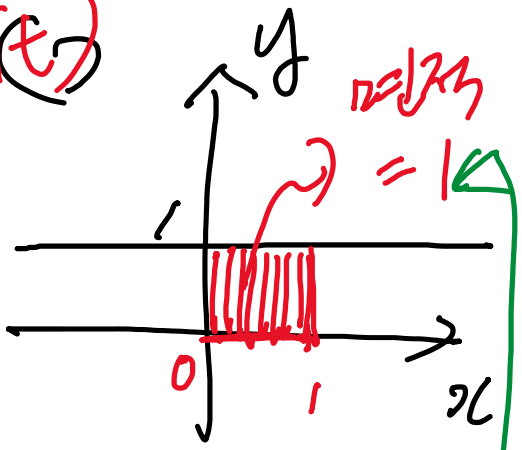
(upper limit) → 상한

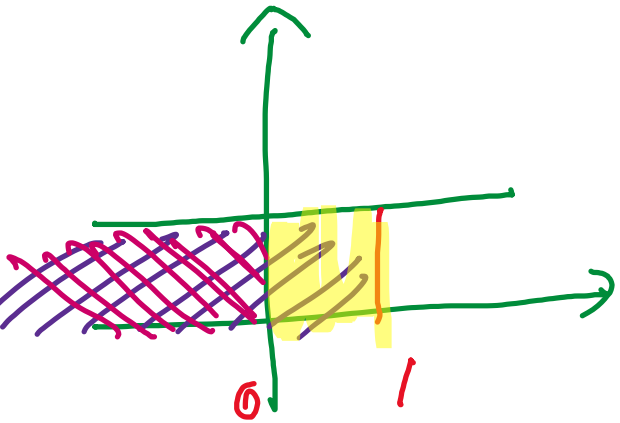
$$\int_0^1 1 \, dx$$

↳ 하한 (lower limit)

$$= \left[x + C \right]_0^1 = (1 + C) - (0 + C)$$

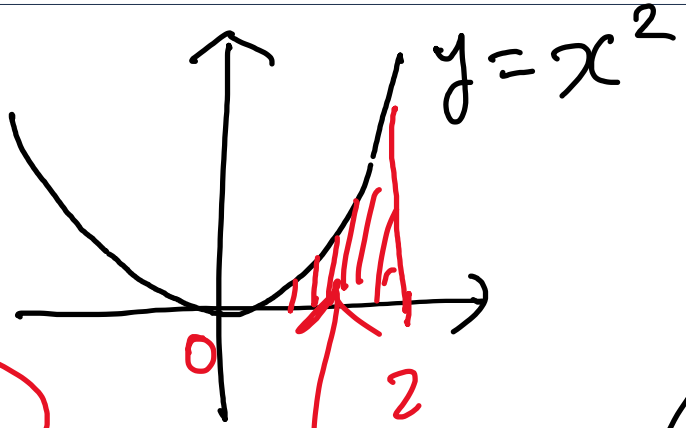
$$= 1 - 0 = 1$$





정적분 (Integration)

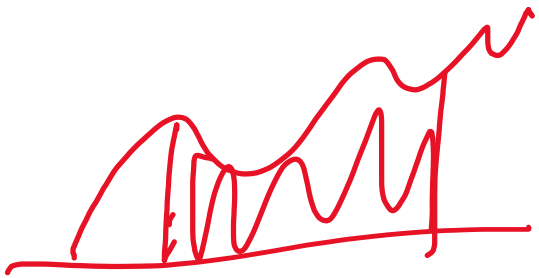
$y = x^2$

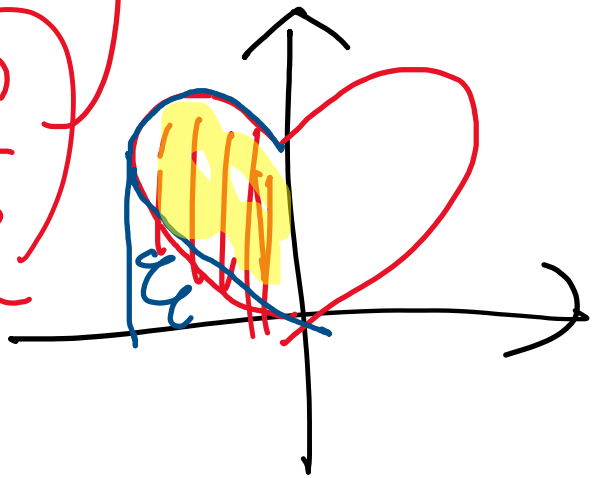


$$\int_0^2 x^2 \, dx = \left[\frac{x^3}{3} \right]_0^2$$

$$= \frac{8}{3} - 0 = \frac{8}{3}$$

$$\left(\frac{x^3}{3}\right)' = x^2$$





$$\int_0^2 e^x dx = \left[e^x\right]_0^2 = e^2 - e^0 = e^2 - 1$$

$$\int_{-\infty}^0 e^x dx = \left[e^x\right]_{-\infty}^0 = e^0 - e^{-\infty} = 1 - 0 = 1$$

$e^0 = 1$

$e^{-\infty} = \frac{1}{e^{\infty}} \to 0$

$$\int_1^2 \log x \, dx = \left[x \log x - x\right]_1^2$$

$$= (2\log 2 - 2) - (-1)$$

$$= 2\log 2 - 1$$

$(x \log x - x)'$

$\log(t+1-1)$

한림대학교
HALLYM UNIVERSITY

한 학기 동안 수고 많았습니다!