INTEGRAL

Jika f(x) adalah fungsi yang differensiabel maka
$\int f'(x)\,dx$ adalah $f(x)+c$

A. Rumus Dasar

1. $\int x^n dx = \frac{1}{n+1}x^{n+1}+c$ dengan $n \neq -1$
2. $\int \frac{1}{x}dx = \int x^{-1}dx = \ln|x|+c$
3. $\int \sin x\,dx = -\cos x + c$
4. $\int \cos x\,dx = \sin x + c$
5. $\int \sec^2 x\,dx = \tan x + c$
6. $\int \csc^2 x\,dx = -\cot x + c$
7. $\int \sec x.\tan x\,dx = \sec x + c$
8. $\int \csc x.\cot x\,dx = -\csc x + c$

B. Integral tentu

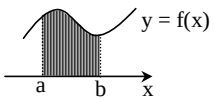
Jika $\int f(x)dx = g(x)+c$ maka

$$\int_a^b f(x)dx = g(x)\Big|_a^b = g(b)-g(a)$$

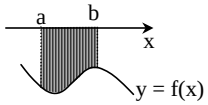
C. Sifat-sifat integral

1. $\int (f(x)+g(x))dx = \int f(x)dx + \int g(x)dx$
2. $\int (f(x)-g(x))dx = \int f(x)dx - \int g(x)dx$
3. $\int kf(x)dx = k\int f(x)dx$
4. $-\int_a^b f(x)dx = \int_b^a f(x)dx$
5. $\int_a^b f(x)dx + \int_b^c f(x)dx = \int_a^c f(x)dx$
6. $\int_a^a f(x)dx = 0$

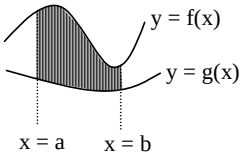
D. Menghitung luas daerah



L= $\int_a^b f(x)dx$

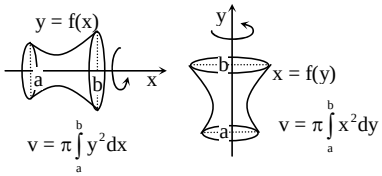


L= $-\int_a^b f(x)dx$



L = $\int_a^b (f(x)-g(x))dx$

E. Volume Benda Putar



F Integral Parsial

$\int udv = uv - \int vdu$