



PERTEMUAN XIVb

Integral Parsial

Jika pengintegralan menggunakan substitusi gagal, maka dimungkinkan menggunakan ***pengintegralan parsial***. Misalkan $u = u(x)$ dan $v = v(x)$ maka :

Integral TakTentu

$$\int u \, dv = uv - \int v \, du$$

Integral Tentu

$$\int_a^b u \, dv = [uv]_a^b - \int_a^b v \, du$$

Contoh :

1. $\int x e^{3x} dx = \dots$

Andaikan

$$u = x$$

$$dv = e^{3x} dx = \frac{1}{3} de^{3x}$$

$$du = \dots$$

$$v = \dots$$

maka

$$\int x e^{3x} dx = \dots$$

2. $\int e^t \cos t \, dt = \dots$

Andaikan

$$u = e^t$$

$$dv = \cos t \, dt$$

$$du = \dots$$

$$v = \dots$$

maka

$$\int e^t \cos t \, dt = \dots$$
$$= \dots$$



UNIVERSITAS NEGERI YOGYAKARTA
FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM
Alamat: Karangmalang , Yogyakarta 55281, Telp. 5548203 HP. 081578984400

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3. $\int \cos^2 x \, dx =$

Andaikan

$$u = \cos x$$

$$du = \dots\dots$$

$$dv = \cos x \, dx$$

$$v = \dots\dots$$

maka

$$\int \cos^2 x \, dx = \dots\dots$$

$$= \dots\dots$$