

Urcity \int \rightarrow Newton

$$\int_{-1}^2 2x \, dx = [x^2]_{-1}^2 = 2^2 - (-1)^2 = 3$$

$$\int_0^1 \frac{1}{\sqrt{1-x^2}} \, dx = [\arcsin x]_0^1 = \frac{\pi}{2} - 0 = \frac{\pi}{2}$$

Problemung

$$\int_1^{\infty} \frac{1}{2\sqrt{x}} \, dx = [\sqrt{x}]_1^{\infty} = \infty - 1 = \infty \quad \text{divergent}$$

$$\int_0^{\infty} \cos x \, dx = [\sin x]_0^{\infty} = \lim_{x \rightarrow \infty} \sin x - \lim_{x \rightarrow 0} \sin x = ? \quad \int \cancel{}$$

$$\int_{-\infty}^{\infty} x \, dx = \left[\frac{x^2}{2} \right]_{-\infty}^{\infty} = \infty - \infty ? \quad \int \cancel{}$$

$$\int_{-3}^3 \frac{1}{x} \, dx \neq [\log |x|]_{-3}^3 = \log 3 - \log 3 = 0$$

\neq na $(-3, 3)$

Per partes

$$\int_0^1 x e^x \, dx = [x e^x]_0^1 - \int_0^1 e^x \, dx = [x e^x]_0^1 - [e^x]_0^1 = e - 0e^0 - (e^1 - e^0) = 1$$

$$\begin{aligned} u &= x & v &= e^x \\ u' &= 1 & v &= e^x \end{aligned}$$

Substitution 2. pñ

$$\int_0^2 \frac{-1}{2\sqrt{4-x^2}} \cdot (-2x) \, dx = \int_4^0 \frac{-1}{2\sqrt{y}} \, dy = [\sqrt{y}]_0^4 = 2 - 0 = 2$$

$$y = 4 - x^2$$

$$dy = -2x \, dx$$

x	0	2
y = 4 - x ²	4	0

$$(a|b) = (a|2)$$

$$(a|b) = (0, 4)$$

$$\varphi((0|2)) = (0|4)$$

Subst. 1. pf.

$$\int_{-1/2}^2 \frac{2}{2} (2x+1) dx = \int_0^5 \frac{1}{2} y dy = \left[\frac{y^2}{4} \right]_0^5 = \frac{25}{4}$$

$$y = 2x+1$$

$$dy = 2dx$$

x	-1/2	2
y	0	5