

$$^a \log b = c$$

$$b = a^c$$

$$\int x^2 dx = \frac{1}{3} x^3$$

$$\int x dx = \frac{1}{2} x^2$$

$$\int x^0 dx = x$$

$$\int dx = x$$

$$\int \frac{dx}{x} = \int x^{-1} dx = \ln x$$

$$\frac{dx(t)}{dt} = -2x(t)$$

$$\int \frac{dx(t)}{x(t)} = \int -2 dt = -2 \int dt = -2t + K$$

$$\int x^{-2} dx = -x^{-1}$$

$$\int x^{-3} dx = -\frac{1}{2} x^{-2}$$

$$\ln[x(t)] = -2t + K$$

$$e^{\log[x(t)]} = e^{-2t + K}$$

$$x(t) = e^{-2t + K}$$

$$= e^{-2t} \cdot e^K$$

$$= e^K \cdot e^{-2t}$$

$$= A \cdot e^{-2t}$$

Kondisi awal

$$t=0 \rightarrow x(0) = 10$$

$$x(0) = A e^{-2 \cdot (0)} = A$$

$$\text{Jadi } A = 10$$

Solusi Analitik

$$x(t) = 10e^{-2t} \quad (\text{exact})$$

t	analitik x(t)	numerik x(t)	galat
0	10	10	0
0,1	$10e^{-0,2}$	$\frac{1}{-}$	-
0,2	$10e^{-0,4}$	-	-
⋮	⋮	⋮	⋮