

Yuto

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よくでる微分方程式 1.

$$\begin{aligned}m \frac{dx}{dt} &= \lambda x \\ \int \frac{dx}{x} &= \int \frac{\lambda}{m} dt \\ \log x &= \frac{\lambda}{m} t + c \\ x &= \exp \left[\frac{\lambda}{m} t + c \right] \\ &= e^c \exp \left[\frac{\lambda}{m} t \right] \\ &= C \exp \left[\frac{\lambda}{m} t \right] \quad (\because e^c = \text{const.} = C)\end{aligned}$$

よくでる微分方程式 2.

$$m \frac{d^2 x}{dt^2} = km$$