Pers. Van der Pol : (order kedua)

$$\frac{d^2x(t)}{dt^2} + \mu\left([x(t)]^2 - 1\right)\left(\frac{dx(t)}{dt}\right) + x(t) = 0$$

$$\frac{d^2x(t)}{dt^2} = -x(t) - \mu\left([x(t)]^2 - 1\right)\left(\frac{dx(t)}{dt}\right)$$

Misalkan $x(t) = x_1 \longrightarrow \dfrac{dx(t)}{dt} = \dfrac{dx_1}{dt} = x_2$

$$\frac{dx(t)}{dt} = x_2 \longrightarrow \frac{d^2x(t)}{dt^2} = \frac{dx_2}{dt}$$

2 buah pers. diffrensial order pertama:

$$\begin{cases} \dfrac{dx_1}{dt} = x_2 \\ \dfrac{dx_2}{dt} = -x_1 - \mu\left(x_1^2 - 1\right)\left(x_2\right) \end{cases}$$

2 (dua) buah pers. diff order pertama