

$$x_{n+1} = x_n + dx$$

$$dx = K_pP + K_iI + K_dD$$

$$P_{n+1} = y_{\text{set}} - y_n$$

$$I_{n+1} = P_{n+1} \, dt$$

$$D_{n+1} = \frac{P_{n+1} - P_n}{dt}$$

$$dt = t_{n+1} - t_n$$