[ARIMA(p,d,q) model]

cf) time series: AR & MA → ARMA or mixed process

cf) p: order of AR, q: order of MA, d: degree of differencing

$(1-B^d)\,y_t = \theta_0 + \phi_1 y_{t-1} + \ldots + \phi_p y_{t-p} - \theta_1 \epsilon_{t-1} - \ldots - \theta_q \epsilon_{t-q} + \epsilon_t$ or

$(1-\phi_1 B - \phi_2 B^2 - \ldots - \phi_p B^p)\,(1-B^d)\,(y_t - \mu) = (1-\theta_1 B - \theta_2 B^2 - \ldots - \theta_q B^q)\,\epsilon_t$

$\theta_0 = (1-\phi_1-\phi_2 \ldots - \phi_p)\,\mu$