$$H(z) = \frac{Y(z)}{X(z)} = \frac{\sum_{q=0}^{M} z^{-q}\beta_q}{\sum_{p=0}^{N} z^{-p}\alpha_p} = \frac{\beta_0 + z^{-1}\beta_1 + z^{-2}\beta_2 + ... + z^{-M}\beta_M}{\alpha_0 + z^{-1}\alpha_1 + z^{-2}\alpha_2 + ... + z^{-N}\alpha_N}$$