

$$y[m] = n \cdot x[m]$$

$$x_q[m] = x[m - m_0]$$

$$\begin{aligned} \rightarrow y_q[m] &= n \cdot x_q[m] \\ &= n \cdot x[m - m_0] \end{aligned}$$

$$y[m - m_0] = (n - m_0) \cdot x[m - m_0]$$

$$x_q[m] = q \cdot x_q[m]$$

$$\begin{aligned} \rightarrow y_q[m] &= n \cdot x_q[m] \\ &= n \cdot q \cdot x[m] \end{aligned}$$

$$\rightarrow y_q[m] = y[m] \cdot q$$

$$\begin{aligned} y_q[m] &\neq y[m - m_0] \\ &\rightarrow \text{not time-invariant} \end{aligned}$$

