

2.30-5  $y(t) = x(t-1) + x(1-t)$  有记忆, 非因果, 稳定, 线性, 时变

2.30-12  $y[n] = nx[n]$  无记忆, 因果, 不稳定, 线性, 时变

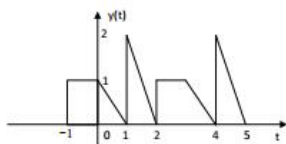
2.30-13  $y(t) = \int_{-\infty}^{2t} x(\tau-1) d\tau$  有记忆, 非因果, 不稳定, 线性, 时变

2.31-1  $y(t) = x(t-2)$  可逆, 逆系统为  $y(t) = x(t+2)$

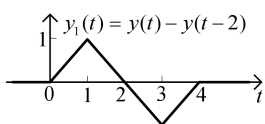
2.31-2  $y[n] = x[1-n]$  可逆, 逆系统为  $y[n] = x[1-n]$

2.32 1) 该系统的信号变换关系为  $y(t) = |x(t) + x(t-3)|$ , 故系统是时不变的, 但是非线性系统。

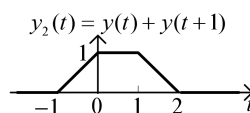
2)



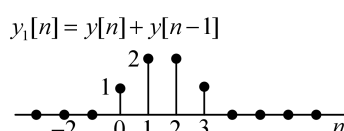
3.1-c



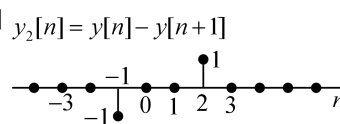
3.1-d



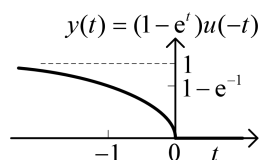
3.2-c



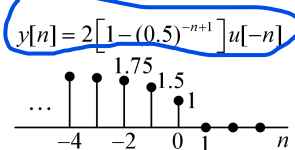
3.2-d



3.3-3



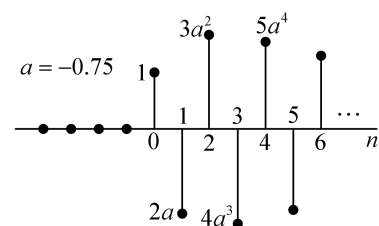
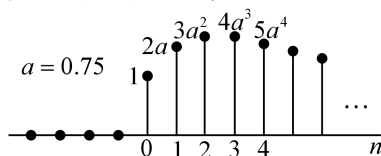
3.3-6



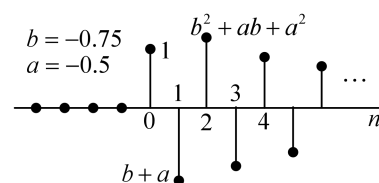
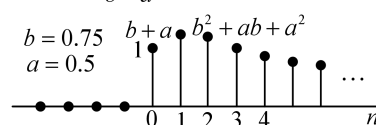
3.4-1

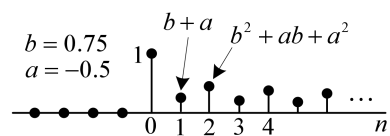
$$y[n] = \begin{cases} (n+1)a^n u[n], & a = b \\ \frac{b^{n+1} - a^{n+1}}{b - a} u[n], & a \neq b \end{cases}$$

1)  $y[n] = (n+1)a^n u[n], a = b$



$$y[n] = \frac{b^{n+1} - a^{n+1}}{b - a} u[n], a \neq b$$





3.4-2

$$y(t) = \begin{cases} te^{-at}u(t), & a = b > 0 \\ \frac{e^{-at} - e^{-bt}}{b - a}, & a \neq b \\ \frac{e^{-at} - e^{-bt}}{b - a}, & a > 0, b > 0 \end{cases}$$

