

A 2.4

$$h[n] = \left( h_1 * \left( h_2 - h_3 * h_4 \right) \right)[n]$$

$$(h_3 * h_4)[n] = h_2[n-1]$$

$$h_2[n] - h_2[n-1] = (n+1)g[n] - n g[n-1] = g[n]$$

$$(h_1 * g)[n] = \sum_{k=-\infty}^{\infty} \left(\frac{1}{2}\right)^k g[k] g[n-k] =$$

$$= g[n] \sum_{k=0}^n \left(\frac{1}{2}\right)^k = \frac{1 - \left(\frac{1}{2}\right)^{n+1}}{1 - \frac{1}{2}} g[n] =$$

$$= \left\{ 2 - \left(\frac{1}{2}\right)^n \right\} g[n]$$