Convolution des signaux $2^k u[k] = f[k]$
$k 3^k u[k] = g[k]$

$$F(z) = \frac{z}{z-2}$$

$$G(z) = \frac{3z}{(z-3)^2}$$

$$Y(z) = F(z)\,G(z) = \frac{3z^2}{(z-2)(z-3)^2}$$

$$\frac{Y(z)}{z} = \frac{3z}{(z-2)(z-3)^2} = \frac{A}{z-2} + \frac{B}{(z-3)} + \frac{C}{(z-3)^2}$$

$$A = \left.\frac{3z}{(z-3)^2}\right|_{z=2} = 6$$

$$C = \left.\frac{3z}{(z-2)}\right|_{z=3} = 9$$

$$B = \left.\frac{(z-2)3 - 3z}{(z-2)^2}\right|_{z=3} = \left.\frac{-6}{(z-2)^2}\right|_{z=3} = -6$$

$$Y(z) = 6\frac{z}{z-2} - \frac{6z}{(z-3)} + \frac{9z}{(z-3)^2}$$

$\mathcal{Z}^{-1}$

$$y[k] = f[k] * g[k] = \left[6(2^k) - 6(3^k) + 3\,k3^k\right] u[k]$$