

$$u(x,t) = \underbrace{\frac{f(x-t)}{2} + \frac{1}{2} \int_{x-t}^0 g(y) dy}_{F(x-t)} + \underbrace{\frac{f(x+t)}{2} + \frac{1}{2} \int_0^{x+t} g(y) dy}_{G(x+t)}$$

$F(x-t)$
(sóng fűrés)

$G(x+t)$
(sóng bal)

$$F(x) = \frac{f(x)}{2} + \frac{1}{2} \int_x^0 g(y) dy = \begin{cases} 0 & x < 0 \\ -4x - x^2 & 0 < x < 4 \\ -32 & x > 4 \end{cases}$$

$$G(x) = \frac{f(x)}{2} + \frac{1}{2} \int_0^x g(y) dy = \begin{cases} 0 & x < 0 \\ 12x - x^2 & 0 < x < 4 \\ 32 & x > 4 \end{cases}$$

