$$\begin{split} \left(1+\frac{1}{2}i\tau H\right)\psi_j^{n+1} &= \left(1-\frac{1}{2}i\tau H\right)\psi_j^n \\ H\psi_j &= -\frac{1}{h^2}\big(\psi_{j+1}-2\psi_j+\psi_{j-1}\big) + V_j\psi_j \\ \\ \lambda &= \frac{2h^2}{} \end{split}$$

 $\left(1\pmrac{1}{2}i au H
ight)\psi_{j}=\psi_{j}\mp irac{ au}{2h^{2}}(\psi_{j+1}-2\psi_{j}+\psi_{j-1})\pm irac{ au}{2h^{2}}h^{2}V_{j}\psi_{j}$ 

$$egin{align} &=\psi_j\mprac{1}{\lambda}\psi_{j+1}\pm2rac{i}{\lambda}\psi_j\mprac{i}{\lambda}\psi_{j-1}\pm h^2rac{i}{\lambda}V_j\psi_j\ &=-rac{i}{\lambda}(\pm\psi_{j-1}+(i\lambda\mp h^2V_j\mp2)\psi_j\pm\psi_{j+1}) \end{split}$$

Επαναληπτική σχέση: Θα έχει το -i /  $\lambda$  και στα δύο μέλη

$$egin{align} \psi_{j-1}^{n+1} + ig(i\lambda - h^2V_j - 2ig)\psi_j^{n+1} + \psi_{j+1}^{n+1} = \ &= -\psi_{i-1}^n + ig(i\lambda + h^2V_i + 2ig)\psi_i^n - \psi_{i+1}^n 
onumber \end{align}$$