$$\left(1+\frac{1}{2}i\tau H\right)\psi_j^{n+1} = \left(1-\frac{1}{2}i\tau H\right)\psi_j^{n}$$

$$H\psi_j = -\frac{1}{h^2}\left(\psi_{j+1} - 2\psi_j + \psi_{j-1}\right) + V_j\psi_j$$

$$\lambda = \frac{2h^2}{\tau}$$

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

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

$$\psi_{j-1}^{n+1} + \left(i\lambda - h^2V_j - 2\right)\psi_j^{n+1} + \psi_{j+1}^{n+1} =$$

$$= -\psi_{j-1}^{n} + \left(i\lambda + h^2V_j + 2\right)\psi_j^{n} - \psi_{j+1}^{n}$$