

$$X_{n+1} = 2X_n - X_{n-1} + a_n h^2$$

$$X_{n+1} = X_n + V_n h + \frac{a_n}{2} h^2 + \frac{(a_{n+1} - a_{n-1})}{12} h^2$$

*expandir $a_{n+1} = 2a_n - a_{n-1}$

$$X_{n+1} = X_n + V_n h + a_n \frac{h^2}{2} + \frac{(2a_n - 2a_{n-1})}{12} h^2$$

$$X_{n+1} = X_n + V_n h + \frac{8a_n}{12} h^2 - \frac{a_{n-1}}{6} h^2$$

$$\left\{ \begin{aligned} X_{n+1} &= X_n + V_n h + \frac{h^2}{6} (4a_n - a_{n-1}) \end{aligned} \right.$$

- Tomando $a_{n-1} = 2a_n - a_{n+1}$

$$X_{n+1} = X_n + V_n h + \frac{h^2}{6} (4a_n - 2a_n + a_{n+1})$$

$$\left\{ \begin{aligned} X_{n+1} &= X_n + V_n h + \frac{h^2}{6} (2a_n + a_{n+1}) \end{aligned} \right.$$

- Finalmente, Para actualizar la Velocidad:

$$2X_{n+1} - X_n + a_{n+1} h^2 = X_{n+1} + V_{n+1} h + \frac{2}{3} a_{n+1} h^2 - \frac{1}{6} a_n h^2$$

Despejando V_{n+1}

$$V_{n+1} h = X_{n+1} - X_n + \frac{h^2}{6} (2a_{n+1} + a_n)$$