Ex 3

$$p + \frac{a}{V^2} = \frac{RT}{V-b} \longrightarrow \underbrace{p + \frac{a}{V^2} - \frac{RT}{V-b}}_{f(V)} = 0$$

$$V_{m+1} = V_m - \frac{f(V_m)}{f'(V_m)}$$

$$f'(V) = -\frac{2a}{V^3} + \frac{RT}{(V-b)^2}$$

$$V_{m+1} = V_m - \frac{\left(p + \frac{a}{V_m^2} - \frac{RT}{V_m - b}\right)}{\left(-\frac{2a}{V_m^3} + \frac{RT}{(V_m-b)^2}\right)}$$

Ex 1 EULER

$$R\ddot{R} + \frac{3}{2}(\dot{R})^2 + 4\nu\frac{\dot{R}}{R} + \frac{2\gamma}{\rho}\frac{1}{R} + \frac{P_0 \sin(\omega t)}{\rho}$$

$$\begin{cases} \dot{R} = V \\ R\dot{V} = -\frac{3}{2}V^2 + 4\nu\frac{V}{R} + \frac{2\gamma}{\rho}\frac{1}{R} + \frac{P_0 \sin(\omega t)}{\rho} \end{cases}$$

$$\begin{cases} R_{m+1} = R_m + h V_m \\ V_{m+1} = V_m + h\left(-\frac{3}{2}\frac{V_m^2}{R_m} - 4\nu\frac{V_m}{R_m^2} - \frac{2\gamma}{\rho}\frac{1}{R_m^2} - \frac{P_0 \sin(\omega t_m)}{\rho R_m}\right) \end{cases}$$

POINT AU TILLEU :