$$U_n = U_{n+1} - 2hU_n - 2h^2U_n$$

$$R_1 = U_n - h^3U_n = [U_{n+1} - 2hU_n - 2h^2U_n] - h^2[U_{n+1} - 2hU_n - 2h^2U_n]$$

$$= (1-h^2)U_{n+1} - 2hU_n + 2h^3U_n - 2h^2U_n + 2h^4U_n$$

$$U_{n+1} = \frac{1}{1-h^2} \cdot [U_n - h^2U_n + 2hU_n - 2h^3U_n + 2h^2U_n - 2h^4U_n]$$

$$= \frac{1}{1-h^2} \cdot [U_n(-2h^4 - 2h^3 + h^2 + 3h)]$$

$$U_{n+1} = U_n \frac{-2h^4 - 2h^3 + h^2 + 3h}{-h^2 + 1}$$