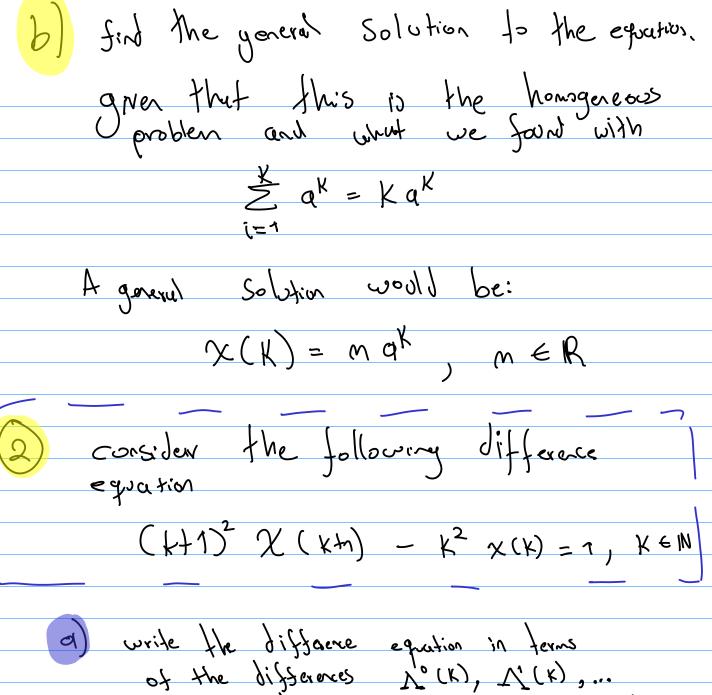
Consider the following second order difference equation: $\chi(K+2) - 2a\chi(K+1) + a^2\chi(K) = 0, K \in \mathbb{N}^n$ a) mustre que $\chi(K) = q^K$ $\chi(K) = Ka^K$ Son 50 U (iones. observe que es un probleme de coeficients constates para el caso homogeneo, luego predo asmir que la solución es de la forma de la polinomio caractor es: $\lambda^2 = 29\lambda + a^2 = 0$ $(\lambda - q)^2 = 0$ $\therefore \lambda = q$ Vego $\chi(K) = q^R$ es una Solución. Como suberos la combinación lineal de solocarés fara el probleme Lambién CS Solvais entonces si hugo: Ž niak jy ni=1 tien. torgo que: Et (1) ak = Kat : tembré as so baion



of the differences $\Lambda^{\circ}(K)$, $\Lambda^{\prime}(K)$,...

Keep in mind that an equation of order m

must be expressed as an equation involving

the $M^{\dagger h}$ lifterence

$$\nabla_{3}(k) = \nabla_{3}(k+1) - \nabla_{3}(k)$$

$$\nabla_{3}(k) = \nabla_{3}(k+1) - \nabla_{3}(k)$$

$$\nabla_{3}(k) = \lambda^{2}(k)$$

b) find the general Solution of the equation.

$$(k+1)^2 \chi(k+1) - k^2 \chi(k) = 1, k \in \mathbb{N}$$