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$$1. -6a_{n-1} + a_n + 4a_{n-2} = 0$$

$$\Rightarrow a_n - 6a_{n-1} + 4a_{n-2} = 0$$

$$x^2 - 6x + 4 = 0$$

$$(x - 3)(x - 3) = 0$$

$\left. \begin{matrix} x = 3 \\ x = 3 \end{matrix} \right\}$  Raíces iguales

$$\Rightarrow a_n = K_1 3^n + K_2 n 3^n$$

$$x_0 = 8, \quad x_1 = 7$$

$$\Rightarrow 8 = K_1 + K_2(0)3^0$$

$$\Rightarrow \boxed{8 = K_1}$$

$$\Rightarrow 7 = 3K_1 + 3K_2$$

$$7 = 24 + 3K_2$$

$$3K_2 = -17 \Rightarrow \boxed{K_2 = -\frac{17}{3}}$$

$$\therefore \boxed{a_n = 8 \cdot 3^n - \frac{17n}{3} 3^n}$$

3.

$$\begin{array}{c} \downarrow \\ \underline{1} \end{array} \times \underline{10} \times \underline{10} \times \begin{array}{c} \downarrow \\ \underline{1} \end{array} = \boxed{100}$$