$a_n = 6a_{n-1} - 9a_{n-2}$ $\quad a_0 = 4$ $\quad a_1 = 12$

$(r-3)(r-3)$

$r^2 - 6r + 9$

$a_n = r^n$

$$\frac{r^n}{r^{n-2}} = \frac{6r^{n-1}}{r^{n-2}} - \frac{9r^{n-2}}{r^{n-2}} = r^2 = 6r - 9$$

$r^2 - 6r + 9 = 0$ $\in C$ $\quad \frac{6 \pm \sqrt{36 - 4(9)}}{2} = \frac{6 \pm \sqrt{0}}{2} = \frac{6}{2} = 3$

$a_n = A3^n + Bn3^n$ Sol general

$4 = A$

$12 = 3A + 3B$ $\quad 12 - 12 = 3B$ $\quad B = 0$

$a_n = 4 \times 3^n$