5) $A_n = 10^{3^n} - 1 = \dot{\left(3^{n+2}\right)}$

Por inducción sobre n:

- $n=1 \rightarrow A_1 = 10^{3^1} - 1 = 999 = \dot{3^3} = \dot{27}$
- Hipótesis inducción $A_n = 10^{3^n} - 1 = \dot{\left(3^{n+2}\right)}$
- $n+1$: $A_{n+1} = 10^{3^{n+1}} - 1 = \dot{\left(3^{n+3}\right)}$?

$$A_{n+1} = 10^{3^n \cdot 3} - 1$$

$$10^{3^n} = 1 + k\cdot\left(3^{n+2}\right)$$

$$A_{n+1} = \left(1 + k\cdot 3^{n+2}\right)^3 - 1 = \cancel{1} + 3k\cdot 3^{n+2} +$$

$$+ \; 3\left(k\cdot 3^{n+2}\right)^2 + \left(k\cdot 3^{n+2}\right)^3 - \cancel{1} =$$

$$A_{n+1} = \underbrace{3k\cdot 3^{n+2}}_{\dot{3^{n+3}}}\left(1 + k^2\cdot 3^{n+2} + k^3 + \left(3^{n+2}\right)^2\right)$$