

$$\begin{aligned}
 h) \quad & \boxed{n=1} \quad \sum_{k=1}^1 k \cdot 5^k = 1 \cdot 5^1 \\
 & = \frac{5 + (4-1) \cdot 5^2}{16} = \frac{80}{16} = 5 \quad \checkmark
 \end{aligned}$$

$$\boxed{n \checkmark \Rightarrow n+1 \checkmark}$$

hyp. de réc.

$$\begin{aligned}
 \sum_{k=1}^{n+1} k \cdot 5^k &= \frac{5 + (4n-1)5^{n+1}}{16} + (n+1)5^{n+1} \\
 &= \frac{5 + (4n-1+16n+16)5^{n+1}}{16} \\
 &= \frac{5 + (4n+3) \cdot 5 \cdot 5^{n+1}}{16} \\
 &= \frac{5 + (4(n+1)-1) \cdot 5^{(n+1)+1}}{16}
 \end{aligned}$$

CQFD