2.76
1

$n=1$ $\quad a^1+a^2 = \frac{a(1-a^2)}{1-a} = \frac{a(1-a)(1+a)}{1-a} = a+a^2$ ✓

$n=k$ $\quad a^k+a^{k+1}+\ldots+a^{2k} = \frac{a^k(1-a^{k+1})}{1-a}$

$n=k+1$ $\quad \underbrace{a^{k+1}+\ldots+a^{2k}}+a^{2k+1}+a^{2k+2} \stackrel{?}{=} \frac{a^{k+1}(1-a^{k+2})}{1-a}$

$\frac{a^k(1-a^{k+1})}{1-a} - a^k + a^{2k+1} + a^{2k+2} \stackrel{?}{=}$ "

$\frac{a^k - a^{2k+1} - a^k + a^{k+1} + a^{2k+1} - a^{2k+2} + a^{2k+2} - a^{2k+3}}{1-a} \stackrel{?}{=}$ "

$=$

$\frac{a^{k+1}(1-a^{k+2})}{1-a} =$