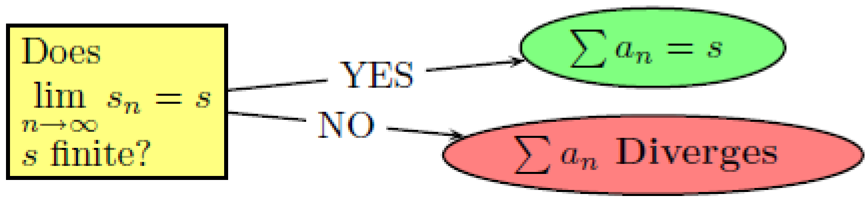
10 **Telescoping Series Test** Series: $\sum_{n=1}^{\infty} (a_{n+1} - a_n)$ <u>Condition of Convergence:</u> $\lim_{n\to\infty} a_n = L$ <u>Condition of Divergence:</u> None	**NOTE:** 1) May need to reformat with partial fraction expansion or log rules. 2) Expand first 5 terms. n=1,2,3,4,5. 3) Cancel duplicates. 4) Determine limit L by taking the limit as $n \to \infty$. 5) Sum: $S = a_1 - L$

TELESCOPING SERIES

Do subsequent terms cancel out previous terms in the sum? May have to use partial fractions, properties of logarithms, etc. to put into appropriate form. — YES



Taylor Series	
Taylor Series	$$f(x) = P_n(x) + R_n(x)$$ $$= \sum_{n=0}^{+\infty} \frac{f^{(n)}(c)}{n!}(x-c)^n + \frac{f^{(n+1)}(x^*)}{(n+1)!}(x-c)^{n+1}$$ where $x \leq x^* \leq c$ (worst case scenario x^*) and $\lim_{x \to +\infty} R_n(x) = 0$