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\begin{aligned}

$$f(m+1) = \sum_{i=0}^m a_i \binom{m}{i} + \sum_{i=0}^m a_{i+1} \binom{m}{i} \quad \&= \sum_{i=0}^{m+1} a_i \binom{m+1}{i}$$

\end{aligned}

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