Hint for Problem 58

For example when $n = 3$, we have $\binom{3}{0} = \binom{3}{3}$ and $\binom{3}{1} = \binom{3}{2}$. The number of subsets of even size is $\binom{3}{0} + \binom{3}{2}$ and the number of subsets of odd size is $\binom{3}{1} + \binom{3}{3}$, and the two sums can be paired off into equal terms. When we subtract the number of subsets of odd size from the number of subsets of even size, the pairing also gives us $\binom{3}{0} - \binom{3}{1} + \binom{3}{2} - \binom{3}{3} = 0$.