



Half Row Sums in Pascal's Triangle

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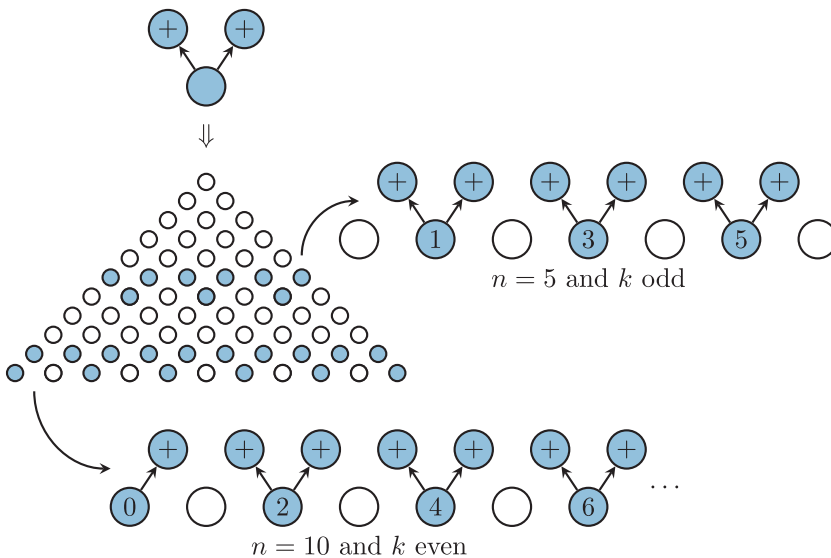
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Theorem. For any integer $n \geq 0$,

$$\sum_{k \text{ even}} \binom{n+1}{k} = \sum_{k \text{ odd}} \binom{n+1}{k} = 2^n.$$

Proof.



Summary. We demonstrate visually that the sum of every other term in the $(n+1)$ st row of Pascal's triangle is equal to the sum of all the terms in the previous row.

ANGEL PLAZA (MR Author ID: [350023](#)) received his masters degree from Universidad Complutense de Madrid in 1984 and his Ph.D. from Universidad de Las Palmas de Gran Canaria in 1993, where he is full professor in applied mathematics. He is interested in mesh generation and refinement, combinatorics and visualization support in teaching and learning mathematics.