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List of properties of binomial coefficients in binomial expansion of (1 + x) raised to n

- Sum of binomial coefficients as 2^n
- Equality of sum of coefficient of odd and even terms

Proof for sum of binomial coefficients of (1 +x) raised to n

- $$(1+x)^n = C(n,0) + C(n,1)x + C(n,2)x^2 + ... + C(n,n)x^n$$
- x = 1
- $$2^n = C(n,0) + C(n,1) + C(n,2) + .. + C(n,n)$$

Expression for sum of coefficient of odd terms in binomial expansion of (1 +x) raised to n

$$2^{n-1}$$

Expression for sum of coefficient of even terms in binomial expansion of (1 +x) raised to n

$$2^{n-1}$$

Proof for expression of sum of coefficient of odd terms and sum of coefficient of even terms and their equality in binomial expansion of (1 +x) raised to n

- $$(1+x)^n = C_0 + C_1x + C_2x^2 + C_3x^3 + ... + C_nx^n$$
- x = -1
- $$(1-1)^n = C_0 - C_1 + C_2 - C_3 + C_4 - .....$$
- $$C_0 + C_2 + C_4 + ... = C_1 + C_3 + C_5..$$

- $$C_0 + C_1 + C_2 + .. = 2^{n-1}$$
- $$C_0 + C_2 + C_4 + ... = C_1 + C_3 + C_5 .. = \frac{2^n}{2} = 2^{n-1}$$