

12.1 Permutations and Combinations

Permutations: ${}^n P_m$

Combinations: ${}^n C_m$

Whole numbers: n, m

1251. Factorial

$$n! = 1 \cdot 2 \cdot 3 \dots (n-2)(n-1)n$$

$$0! = 1$$

1252. ${}^n P_n = n!$

$$1253. {}^n P_m = \frac{n!}{(n-m)!}$$

1254. Binomial Coefficient

$${}^n C_m = \binom{n}{m} = \frac{n!}{m!(n-m)!}$$

$$1255. {}^n C_m = {}^n C_{n-m}$$

$$1256. {}^n C_m + {}^n C_{m+1} = {}^{n+1} C_{m+1}$$

$$1257. {}^n C_0 + {}^n C_1 + {}^n C_2 + \dots + {}^n C_n = 2^n$$

1258. Pascal's Triangle

Row 0										1									
Row 1										1									
Row 2										1		2		1					
Row 3										1		3		3		1			
Row 4										1		4		6		4		1	
Row 5										1		5		10		10		5	
Row 6										1		6		15		20		15	