

## Binomial coefficient, ${}^nC_r$ or $\binom{n}{k}$

$${}^nC_k = {}^{(n-1)}C_k + {}^{(n-1)}C_{(r-1)}$$

```
typedef long long ll;
ll table[50][50];
ll nCr (ll n, ll r) {
    if (r == 1) return n;
    if (n == r) return 1;
    if (table[n][r] != 0) return table[n][r];
    table[n][r] = nCr(n-1, r) + nCr(n-1, r-1);
    return table[n][r];
}
// test input: nCr(20, 10), output: 184756
```