

Editorial :

The score is number of set bits in xor of two arrays to get score equal to K
 we want k set bits and (n-k) reset bits in xor .

There are $\binom{n}{k}$ ways to do that .

If we want i'th bit to set in xor there are two ways

1. arr[i]=1 and brr[i]=0
2. arr[i]=0 and brr[i]=1

If we want i'th bit to reset in xor there are two ways

1. arr[i]=0 and brr[i]=0
2. arr[i]=1 and brr[i]=1

$$\text{Answer} = \binom{n}{k} 2^n$$

Precompute all the factorial and inverse factorial under a MOD.

Complexity :

Per test case : O(log(n))

Pre computation :O(MAX log(MAX))

Total :O(MAX log(MAX))

CODE :

MOD=10**9+7

*##binary exponentiation to compute a**b(modulo MOD)*

def binary_exp(a,b,MOD):

 ans=1

while b:

if b&1:

 ans*=a

 ans%=MOD

 a*=a

 a%=MOD

 b//=2

return ans

fac=[1]*(10**5+1)

##computing factorial under MOD

for i **in** range(2,10**5+1):

 fac[i]=fac[i-1]*i

 fac[i]%=MOD

##computing factorial inverse under MOD

facinv=[binary_exp(i,MOD-2,MOD) **for** i **in** fac]

```
for _ in range(int(input())):
    n,k=map(int,input().split())
    res=fac[n]*facinv[n-k]*facinv[k]
    res%=MOD
    res*=binary_exp(2,n,MOD)
    res%=MOD
    print(res)
```