**组合数取模，模不是素数的情况**

**const** **int** MAXN = 2000005;

**bool** ispri[MAXN];

**int** prime[MAXN];

**int** priCnt;

**void** CalPrime()

{

    priCnt = 0;

**memset**(ispri,**false**,**sizeof**(ispri));

**for**(**int** i = 2;i < MAXN; ++i)

    {

**if**(ispri[i] == **false**)

        {

            prime[priCnt++] = i;

**for**(**int** j = i+i;j < MAXN; j += i)

                ispri[j] = **true**;

        }

    }

}

LL DivideByPrime(LL N,LL P)

{

    LL ans = 0;

**while**(N)

        ans += N/P,N /= P;

**return** ans;

}

LL QuickMod(LL a,LL b,LL m)

{

    LL ans = 1;

    a %= m;

**while**(b)

    {

**if**(b&1)

            ans = ans\*a%m,b--;

        b >>= 1;

        a = a\*a%m;

    }

**return** ans;

}

//C(N,M) % P

LL CalCnmModP(LL N,LL M,LL P)

{

**if**(M>N)

**return** 0;

    LL ans = 1;

**for**(**int** i = 0 ;i < priCnt && prime[i] <= N; ++i)

    {

        LL x = DivideByPrime(N,prime[i]);

        LL y = DivideByPrime(N-M,prime[i]);

        LL z = DivideByPrime(M,prime[i]);

        x -= (y+z);

        ans \*= QuickMod(prime[i],x,P);

        ans %= P;

    }

**return** ans;

}

使用先CalPrime()

再CalCnmModP(N,M,P)

N>M