Gamma

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1 The function

Simmplifying the programming question :
let us give to find $((1+k)(1+2k)(1+3k)(1+ck))$ where c is the largest integer such that $ck \leq n$. The function $f(k,n) = \prod_{i=1}^{c}(1+ik)$. As the highest value of c can be $\lfloor n/k \rfloor$.
So we have to find the value of

$$\prod_{i=1}^{\lfloor n/k \rfloor}(1+ik)$$

And

$$\prod_{i=1}^{\lfloor n/k \rfloor}(1+ik) = k^{\lfloor n/k \rfloor} \quad . \frac{\Gamma(\lfloor n/k \rfloor + \frac{k+1}{k})}{\Gamma(\frac{k+1}{k})}$$

Or ,

$$= k^{\lfloor n/k \rfloor + 1} \quad . \frac{\Gamma(\lfloor n/k \rfloor + \frac{k+1}{k})}{\Gamma(\frac{1}{k})}$$

The C++ code will be :

```
#include<bit/stdc++.h>
#include<cmath>
using namespace std;
int main()
{
int n , k;
cin>>n>>k;
doulbe  p ;
p = (pow(k,n/k) * tgamma((n/k)+((k+1)/k)) )/tgamma((k+1)/k)
cout<<p;
}
```