/\*

\* 一旦被超过的就永远不会再成为max

\*/

#include<iostream>

#include<cstdio>

#include<cstring>

const int N=100001;

typedef struct Node{

\_\_int64 v;

int d;

}Node;

Node a[N],b[N];

\_\_int64 ans[N];

int main(){

// freopen("in.txt","r",stdin);

int n,m,i,j;

while(scanf("%d%d",&n,&m)!=EOF){

\_\_int64 maxn=-1;

int maxp;

Node\* p=a;

Node\* q=b;

Node\* tmp;

for(i=0;i<n;++i){

scanf("%I64d%d",&a[i].v,&a[i].d);

}

int top1=n,top2=0;

int xx=0;

for(i=0;i<N;++i){

//找最大

for(j=0;j<top1;++j){

if(p[j].v>maxn){

maxn=p[j].v;

maxp=j;

}

}

ans[i]=maxn;

top2=0;

q[top2].v=p[maxp].v+p[maxp].d;

q[top2++].d=p[maxp].d;

for(j=0;j<top1;++j){

p[j].v+=p[j].d;

if(p[j].d>q[0].d){

q[top2].d=p[j].d;

q[top2++].v=p[j].v;

}

}

top1^=top2;top2^=top1;top1^=top2;

tmp=p;p=q;q=tmp;

}

int t;

while(m--){

scanf("%d",&t);

printf("%I64d\n",ans[t]);

}

}

return 0;

}