#include <fstream>

using namespace std;

ifstream fin("bazaxy.in");

ofstream fout("bazaxy.out");

int ap[10];

void transfb10(unsigned long long &x, int b)

{

unsigned long long m=0,p=1;

do

{

int uc=x%10;

x=x/10;

m=m+p\*uc;

p=p\*b;

}while(x);

x=m;

}

void transf10b(unsigned long long &x, int b)

{

unsigned long long m=0,p=1;

do

{

int uc=x%b;

x=x/b;

m=m+p\*uc;

p=p\*10;

}while(x);

x=m;

}

int main()

{

int a,b;

unsigned long long p,x,y;

fin>>a>>b>>x>>y;

int baza=min(a,b);

if(a>baza)

{

transfb10(x,a);

transf10b(x,baza);

}

else

{

transfb10(y,b);

transf10b(y,baza);

}

unsigned long long n=x,m=y;

do

{

int uc=n%10;

n=n/10;

ap[uc]=1;

}while(n);

do

{

int uc=m%10;

m=m/10;

if(ap[uc]==1)

ap[uc]=2;

} while(m);

int ok=-1;

for(int i=0;i<=9;i++)

if(ap[i]==2)

{

ok=i;

break;

}

fout<<ok<<"\n"<<x<<" "<<y;

return 0;

}