**ĐÁP ÁN ĐỀ THI CHỌN HSG TRƯỜNG LỚP 12 (LẦN 2) NĂM HỌC 2022-2023**

**MÔN: TIN HỌC**

**BÀI 1: Hệ đếm**

const fi='BAI1.inp';

fo='BAI1.out';

var f:text;

s:string;

i:byte;

t:int64;

begin

assign(f,fi);

reset(f);

readln(f,s);

close(f);

assign(f,fo);

rewrite(f);

t:=0;

for i:=1 to length(s) do

if s[i]='1' then

t:=t\*2+1

else

t:=t\*2;

write(f,t);

close(f);

end.

**BÀI 2: Tìm số nguyên tố**

const fi='BAI2.inp';

fo='BAI2.out';

var f:text;

m,n,k,i,dem,t,s:longint;

function kt(i:longint):boolean;

var j:longint;

begin

if i<2 then exit(false)

else

for j:=2 to trunc(sqrt(i)) do

if i mod j=0 then

exit(false);

exit(true);

end;

begin

assign(f,fi);

reset(f);

readln(f,m,n,k);

close(f);

assign(f,fo);

rewrite(f);

dem:=0;

for i:=m+1 to n-1 do

if kt(i) then

begin

t:=i;

s:=0;

while t>0 do

begin

s:=s+t mod 10;

t:=t div 10;

end;

if s mod k=0 then

inc(dem);

end;

write(f,dem);

close(f);

end.

**BÀI 3: Taxi**

const fi='BAI3.INP';

fo='BAI3.OUT';

var f:text;

d:array[1..4] of longint;

n,i,x,s:longint;

begin

assign(f,fi);

reset(f);

readln(f,n);

for i:=1 to n do

begin

read(f,x);

inc(d[x]);

end;

close(f);

s:=d[4];

if d[3]>d[1] then

d[1]:=0

else

d[1]:=d[1]-d[3];

s:=s+d[3];

s:=s+d[2] div 2;

if d[2] mod 2=0 then

d[2]:=0

else

d[2]:=1;

if d[2]=1 then

begin

s:=s+1;

if d[1]>2 then

d[1]:=d[1]-2

else

d[1]:=0;

end;

if d[1] mod 4=0 then

s:=s+d[1] div 4

else

s:=s+d[1] div 4 +1;

assign(f,fo);

rewrite(f);

write(f,s);

close(f);

end.

**Bài 4: Số lớn nhất**

const fi='Bai4.inp';

fo='Bai4.out';

var f:text;

X,Y:string;

n,m,i,j:longint;

C:array[0..200,0..200] of string;

begin

assign(f,fi);

reset(f);

readln(f,X);

readln(f,Y);

close(f);

n:=length(X);

m:=length(Y);

for i:=1 to n do

for j:=1 to m do

if X[i]=Y[j] then

begin

c[i,j]:=c[i-1,j-1]+X[i];

while (C[i,j]<>'') and (C[i,j][1]='0') do

delete(C[i,j],1,1);

end

else

if length(C[i,j-1])>length(C[i-1,j]) then

C[i,j]:=C[i,j-1]

else

if length(C[i-1,j])>length(C[i,j-1]) then

C[i,j]:=C[i-1,j]

else

if C[i,j-1]>C[i-1,j] then

C[i,j]:=C[i,j-1]

else

C[i,j]:=C[i-1,j];

assign(f,fo);

rewrite(f);

if c[n,m]='' then

begin

if (pos('0',X)>0) and (pos('0',Y)>0) then

write(f,0);

end

else

writeln(f,c[n,m]);

close(f);

end.