**Exercice 1:**

dec:=proc(n,k,l)

local i,j,L,a,d;

L:=[];

for j from 1 to l do

a:=rand(2..n-2)();

for i from 2 to k do

a:=a^i mod n;

d:=gcd(a-1,n);

if d>1 and d<n then

L:=[op(L),d,n/d];

eval(L);

end if;

end do;

end do;

return (L);

end proc:

**Exercice 2**

1)

elgamalencrypt:= proc (m)

local k,gamma,delta;

k:=rand(2..p-2)();

gamma:=g&^k mod p;

delta:=m\*(power(ga,k) mod p) mod p;

return gamma,delta,m;

end proc :

2) L:=[98,111,110,106,111,117,114,32,109,111,110,115,105,101,117,114,32] ;

fichier:= proc(L)

local i ,M ;

M:=[];

for i from 1 to nops(L) do

M:=[op(M),elgamalencrypt(L[i])];

end do;

return M;

end proc: