```
> F5 := 2^32+1; b[0] := 3;
```

$$F5 := 4294967297$$

$$b_0 := 3 \tag{1}$$

```
> for i from 1 to 32 do b[i] := b[i-1]^2 mod F5; od;
```

$$b_1 := 9$$
$$b_2 := 81$$
$$b_3 := 6561$$
$$b_4 := 43046721$$
$$b_5 := 3793201458$$
$$b_6 := 1461798105$$
$$b_7 := 852385491$$
$$b_8 := 547249794$$
$$b_9 := 1194573931$$
$$b_{10} := 2171923848$$
$$b_{11} := 3995994998$$
$$b_{12} := 2840704206$$
$$b_{13} := 1980848889$$
$$b_{14} := 2331116839$$
$$b_{15} := 2121054614$$
$$b_{16} := 2259349256$$
$$b_{17} := 1861782498$$
$$b_{18} := 1513400831$$
$$b_{19} := 2897320357$$
$$b_{20} := 367100590$$
$$b_{21} := 2192730157$$
$$b_{22} := 2050943431$$
$$b_{23} := 2206192234$$
$$b_{24} := 2861695674$$
$$b_{25} := 2995335231$$
$$b_{26} := 3422723814$$
$$b_{27} := 3416557920$$
$$b_{28} := 3938027619$$
$$b_{29} := 2357699199$$
$$b_{30} := 1676826986$$
$$b_{31} := 10324303$$
$$b_{32} := 3029026160 \tag{2}$$

```
> CN := 7*13*19; #561;
  10 &^ (CN-1) mod 561;
```

$$CN := 1729$$

$$1 \tag{3}$$

```
> ifactor(CN-1);
```

$$(2)^6 (3)^3 \tag{4}$$

```
> m := (CN-1)/2^6;
```

$$m := 27 \tag{5}$$

```
> for j from 0 to 6 do j,101 &^ (2^j*m) mod CN; od;
```

$$0, 818$$
$$1, 1$$
$$2, 1$$
$$3, 1$$
$$4, 1$$
$$5, 1$$
$$6, 1 \tag{6}$$

```
> ifactor(igcd(818-1,CN));
```

$$(19) \tag{7}$$

```
> k := 458043285409582374813461937841023481280421 0;
```

$$k := 458043285409582374813461937841023481280421 0 \tag{8}$$

```
> for i from 1 to 1000 do if isprime(k+i) then print(k+i); fi; od;
```

$$458043285409582374813461937841023481280428 3$$
$$458043285409582374813461937841023481280431 7$$
$$458043285409582374813461937841023481280435 9$$
$$458043285409582374813461937841023481280462 3$$
$$458043285409582374813461937841023481280463 7$$
$$458043285409582374813461937841023481280466 7$$
$$458043285409582374813461937841023481280472 1$$
$$458043285409582374813461937841023481280482 9$$
$$458043285409582374813461937841023481280485 7$$
$$458043285409582374813461937841023481280485 9$$
$$458043285409582374813461937841023481280488 9 \tag{9}$$

```
> ifactor(120);
```

$$(2)^3\ (3)\ (5) \tag{10}$$

```
> with(numtheory);
```

$$[GIgcd, bigomega, cfrac, cfracpol, cyclotomic, divisors, factorEQ, factorset, fermat, imagunit, \tag{11}$$
$$index, integral\_basis, invcfrac, invphi, iscyclotomic, issqrfree, ithrational, jacobi, kronecker,$$
$$\lambda, legendre, mcombine, mersenne, migcdex, minkowski, mipolys, mlog, mobius, mroot,$$
$$msqrt, nearestp, nthconver, nthdenom, nthnumer, nthpow, order, pdexpand, \phi, \pi, pprimroot,$$
$$primroot, quadres, rootsunity, safeprime, \sigma, sq2factor, sum2sqr, \tau, thue, \varphi]$$

```
> phi(120);
```

$$32 \tag{12}$$

```
>
```