

```

> ifactor(2^32 + 1);
(641) (6700417) (1)
> for i from 20 to 33 do 2^i + 1 mod 641; od;
542 (2)
442
242
483
324
6
11
21
41
81
161
321
0
640
> 2^64 mod 641;
1 (3)
> 2 &^ 128 mod 641;
1 (4)
> evalf(log[10](2^128));
38.53183945 (5)
> p := 2^32+1; n := 32; r[1]:=3;
for i from 2 to n do r[i] := (r[i-1]^2 mod p);
print(i,r[i]); od:
p := 4294967297 (6)
n := 32
r1 := 3
2, 9
3, 81
4, 6561
5, 43046721
6, 3793201458
7, 1461798105
8, 852385491
9, 547249794
10, 1194573931
11, 2171923848
12, 3995994998
13, 2840704206
14, 1980848889
15, 2331116839
16, 2121054614
17, 2259349256
18, 1861782498
19, 1513400831
20, 2897320357
21, 367100590
22, 2192730157
23, 2050943431
24, 2206192234

```

```
25, 2861695674
26, 2995335231
27, 3422723814
28, 3416557920
29, 3938027619
30, 2357699199
31, 1676826986
32, 10324303
```

```
> 2^(2^7) mod (2^32+1);
```

```
1
```

(7)

```
> m:=3; n:=5; for i from 0 to m*n-1 do
  print(i, i mod m, i mod n); od:
```

```
m := 3
n := 5
0, 0, 0
1, 1, 1
2, 2, 2
3, 0, 3
4, 1, 4
5, 2, 0
6, 0, 1
7, 1, 2
8, 2, 3
9, 0, 4
10, 1, 0
11, 2, 1
12, 0, 2
13, 1, 3
14, 2, 4
```

(8)

```
> ?
```