

2016 CS333000

S2 (HW4) Ans

1.

```

x = 10000
var('y')
cnt = 0
for n in xrange(1,x):
    tmp = sigma(n)-n
    if(tmp != 0) :
        tmp2 = sigma(tmp)-tmp
        if((n == tmp2) and (tmp < n)):
            print n,
            print tmp
            print

```

```

y
284 220

1210 1184

2924 2620

5564 5020

6368 6232

```

2.

```

def last_twist(B,n):
    tmp = 2
    for i in xrange(2,B):
        tmp = tmp^i % n
    return tmp

```

```

n = 862021547643631582396998212208722914288258644234791307950582916442747222039795609417741932278317121
c = last_twist(10001,n)-1;c
p = gcd(c,n);p
q = n/p;q
print q*p == n

```

```

224979013354925796014634857144226255099788580779559898824644396439468017442178882914073012987785590
58237079279233344183269762225028347515133736517633
14801936469211262496713424888760656483543649615937
True

```