



THE CRYPTO CHALLENGE CONTEST

UNUSUAL ENCRYPTION USING A DIOPHANTINE EQUATION

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August 2011

Introduction

In the field of cryptanalysis it is a common problem to factorize a really large number to be able to recover a secret message. For example in RSA it is necessary to find integer values of x and y so that $x \cdot y = n$ for a big n .

What about if we change the left hand side of the equation to something more complex?

For example: $x^8 + y^8$

Assuming n is of approximately the same size in both cases. What is more difficult to solve? $x \cdot y = n$ or $x^8 + y^8 = n$?

Try the following problem ...

Find positive integer numbers x and y such that $x^8 + y^8 = n$.

Then you need to convert

$((x + y)^9 \bmod (x^9 + y^9)) - s$

into HEX code and look up the corresponding ASCII symbols to see the secret message.

Please enter this secret message as the solution of this challenge.

Mind punctuation, spelling and spaces!

Necessary information

n=17223507887602526420151651536619310810581211968884712
6004716224532776723116052328171863767706081964839632836
05920702226380449555021499188148868557483176337161377

s=23427456865831531469841846134062427224696791669617935
5961390802738600542719445675229379394072632986775058800
14233705610133132464032085465605683426762387365644294
8859381395506665599