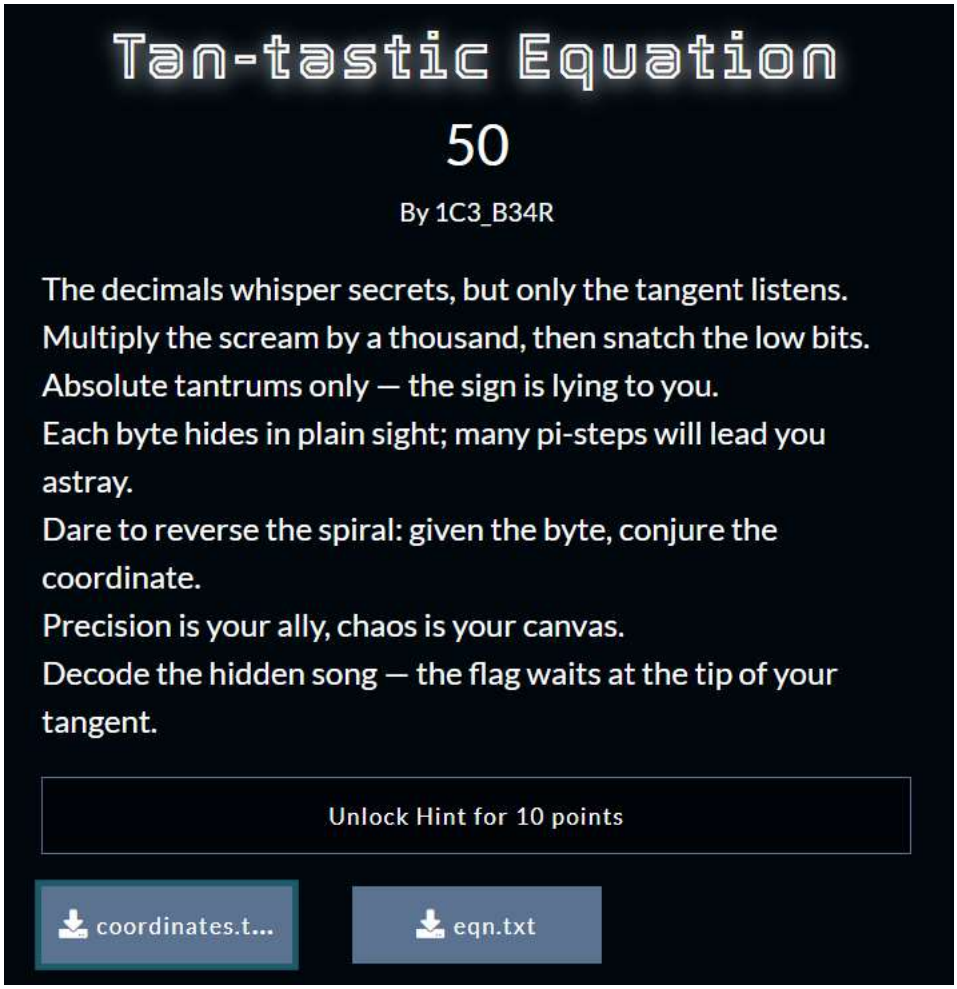
Tan-tastic Equation

22 October 2025 13:41

CATEGORY: Cryptography



STEP BY STEP SOLUTION

Opening the eqn.txt provided we find some this base64 encoded text "eSA9ICggZmxvb3IoIHx0YW4oeCl8ICogMTAwMCApICkgJSAyNTY=" which when decoded gives "y = (floor(|tan(x)| * 1000)) % 256"

Now, opening the coordinates.txt file we find a list of numbers…. Let us see what we get when we plug in each of those numbers into the equation we just found out (using the following python code) :

```
import math

numbers = [0.07336807223576997938, 3.20998581450994846520, 6.35058307089782569932,
9.54765576060061427199, 12.61981965838150365755, 15.80713684646701011616,
18.96355944653141989420, 22.04060820533660347564, 25.24477019114433318236,
```

```
28.32977700276811106050, 31.52103771542342158796, 34.66757271170636300894,
37.80224462779982985694, 40.93591574715033942766, 44.03175678046515173492,
47.17733884786922260446, 50.36069370791971522294, 53.52206558355997145782,
56.66069672704226434234, 59.73972004841411376219, 62.93102665031390330341,
66.09435309460917551405, 69.23988565088075120002]

for i in numbers:
    print(math.floor(abs(math.tan(i))*1000) % 256, end= " ")
```

We find the following output:

```
================ RESTART: C:/Users/admin/Desktop/tantasticeqn.py ===============
73 68 67 123 53 99 114 49 112 55 105 110 103 95 49 53 95 115 112 49 99 121 125
```

Hmm…those look like ASCII values of the message
Let's decode it using this slightly changed code

```
import math

numbers = [0.07336807223576997938, 3.20998581450994846520, 6.35058307089782569932,
9.54765576060061427199, 12.61981965838150365755, 15.80713684646701011616,
18.96355944653141989420, 22.04060820533660347564, 25.24477019114433318236,
28.32977700276811106050, 31.52103771542342158796, 34.66757271170636300894,
37.80224462779982985694, 40.93591574715033942766, 44.03175678046515173492,
47.17733884786922260446, 50.36069370791971522294, 53.52206558355997145782,
56.66069672704226434234, 59.73972004841411376219, 62.93102665031390330341,
66.09435309460917551405, 69.23988565088075120002]

for i in numbers:
    print(chr(math.floor(abs(math.tan(i))*1000) % 256), end= "")
```

And we have the flag

```
================ RESTART: C
IDC{5cr1p7ing_15_sp1cy}
```

FLAG: IDC{5cr1p7ing_15_sp1cy}