

Crypto Challenge Write-Up - The Cursed Parchment

Layers: Base92 → Affine Cipher

Given Ciphertext

```
>wufvG.c?dSI?f0wCPR34l\j/7RgVbtb
```

Step 1 – Identify the Encoding

The ciphertext contains mixed symbols, numbers, uppercase and lowercase letters, indicating it is likely an encoding scheme rather than a simple classical cipher.

Tool Used: dcode.fr → Cipher Identifier

Procedure:

1. Navigate to dcode.fr → Cipher Identifier
2. Paste the ciphertext:

```
>wufvG.c?dSI?f0wCPR34l\j/7RgVbtb
```

3. Run the analysis.

Result:

The tool suggests Base92 Encoding as the most probable match.

Step 2 – Decode Base92

Tool Used: dcode.fr → Base92 Decoder

Procedure:

- Paste the ciphertext into the Base92 decoder.
- Click Decrypt.

Output:

RGZ{LHEHFIREN_LHM_NRZERW}

The output:

- Contains only uppercase letters

- Resembles a structured flag format
- Indicates another encryption layer

Step 3 – Identify the Second Cipher

The decoded text resembles a substitution cipher.

Based on the structure and challenge hint, it is identified as an Affine Cipher.

The screenshot shows the dCode Cryptography tool interface. In the search bar, 'CIPHER IDENTIFIER' is selected. Below it, 'ENCRYPTED MESSAGE IDENTIFIER' is set to 'RGZ{LHEHFIREN_LHM_NRZERW}'. A large button labeled 'ANALYZE' is present. To the right, a sidebar lists various cipher-related topics like 'Encrypted Message Identifier', 'How to decrypt a cipher text?', and 'Similar pages' including 'Index of Coincidence' and 'Frequency Analysis'.

Step 4 – Brute Force Affine Cipher

Tool Used: dcode.fr → Affine Cipher Decoder

Procedure:

1. Paste:

```
RGZ{LHEHFIREN_LHM_NRZERW}
```

2. Select alphabet: ABCDEFGHIJKLMNOPQRSTUVWXYZ

3. Click Automatic Brute Force Decryption

The tool tests all valid combinations of coefficients (a, b).

Correct Key

a = 9, b = 7

Final Decrypted Output:

The screenshot shows the dCode website interface for an affine cipher decoder. At the top, there's a search bar and a browse tools list. Below it, the 'Results' section displays a table of decryption attempts for various coefficient pairs (A, B). The table has two columns labeled 'II' and 'III'. The first row shows the best result: A=9, B=7, which decrypted the ciphertext 'RGZ{LHEHFIREN_LHM_NRZERW}' back into the plaintext 'EXC{MARAUDERS_MAP_SECRET}'. The 'AFFINE DECODER' section includes fields for 'AFFINE CIPHERTEXT' (set to 'RGZ{LHEHFIREN_LHM_NRZERW}'), 'EXPECTED PLAINTEXT LANGUAGE' (set to 'English'), 'ALPHABET' (set to 'ABCDEFGHIJKLMNOPQRSTUVWXYZ'), and a button for 'AUTOMATIC BRUTE FORCE DECRYPTION'. The 'MANUAL PARAMETERS AND OPTIONS' section allows setting coefficients A and B, and selecting options like displaying the decrypted message or the decoding table. The 'AFFINE ENCODER' section shows the original ciphertext 'EXC{MARAUDERS_MAP_SECRET}' and an 'AFFINE PLAIN TEXT' field. On the right side, there's a sidebar with links related to affine ciphers and a 'Similar pages' section.

EXC{MARAUDERS_MAP_SECRET}