



- Naughty List **2-12-22-2024-B**
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The Elves have dabbled in mathematics to bring you their most sophisticated encryption yet—the **Affine Cipher**! They've combined multiplication and addition to turn Santa's Naughty and Nice lists into a numerical puzzle of epic proportions. Your task is to write a program that deciphers these mathematical mysteries and turns the ciphertexts below back into plaintext names.

Think you can crack their cleverly crafted codes and earn Santa's admiration? Get ready to juggle some modular arithmetic, flex your programming skills, and show the Elves you're no stranger to mathematical magic. Decode the list and let the holiday fun (and learning) begin!

The **set** the elves used for encrypting the plaintext to ciphertext is:

ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz1234567890 !@#\$%^&*()_+, . / ? > < + _ : " ;

No.	Cipher used	Ciphertext (Encrypted name on the Naughty List)
1	Affine Cipher	Gq:Z?Cq:wK+3:llw#UUxKerqDOlw#UrK-K2fwKwl(KgfUK3:Jw:xwZKxfwKqDxKU(Ka?:CfDU:3PwZKI3(x-gDqrr3:lKq:ZKa:Ug(lqOwK/)lIl3:lKCU9rwx3x3U:a+
2	Affine Cipher	iqVoDMq>>yem_WBB>go&Vy?8m2?88WfyN>gm-m@m<y<yqm<yffyoog?VmeDym8qo8g-8go8omq>>mDy>WNq^mNVWf9omzyVmMqVoDMq>>ye-8y-<y<yqmVq8Wyou
3	Affine Cipher	TIWqv)uE_1wCH7w_?M7uY1M2IWbb7lu-u8Wlv_u&WH7'quH7m2uHm1^_uqb7w?mH?qvZu7Rq1l?R^u_WH?2m)u_1MWlu?quWR-bW?Rvu!Wlu"mRvm'qu WH2 ?27uwWM72)uvW1le
4	Affine Cipher	nwOl^J?:?;;Q_8<k:<u_FOrRJ?:E22Ek_-_q!_?,f?;2_O!_2<;!O!u_?V?!_2_?_g;O!Y_O?a2_T;Ew!a_<faOz?_zEw!_wO2__uJO22?;-:Ek:_a<;f;Oa?ae
5	Affine Cipher	tGr(6@WrGGJ^bGGLyG&yyJ_(66Gr4bd;4J-J1@rJrGyJwr4ibU4(WGrJybwJ;rri(U6Jwr(UkrwJ P(G4J4LG(4@JPuKJ?(U6G(U6J(UJirwyrd J@PwNbULQ