

Cryptography

1. Compute $25^{33} \bmod 7$.
2. Find $\text{GCD}(68, 50)$ using Euclid algorithm.
3. Find $m, n \in \mathbf{Z}$ such that $68m + 50n = d$, where d is the answer to the previous question.
4. Find $35^{-1} \bmod 71$.
5. Test pseudoprimality of 641 for base 8.
6. Give public key and secret key for RSA for the following data: $p = 47$, $q = 71$, $e = 19$.
7. Using the previous result encrypt the message "blow". (Every English letter is associated a number in the natural alphabetic order.)