Cryptography

1. Compute $25^{33} \bmod 7$.

2. Find $\text{GCD}(186, 254)$ using Euclid algorithm.

3. Find m, n such that $186m + 254n = d$, 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. (Huiswerk) Using the previous result encrypt the message "sell". (Every English letter is associated a number in the natural alphabetic order.)