RSA Cryptography.

1. This question will do a simple RSA encoding and decoding. Assume that the letters of the alphabet correspond to the numbers 1-26. (A=1, B=2, ...,Z=26; only capital letters are used).
   a. If ***p = 7*** and ***q = 13***, what is ***n*** and what are the three smallest possible numbers for ***e***?
   b. If ***p = 7***, ***q = 13***, and ***e = 7***, what is ***d*** (the multiplicative inverse of ***e***)?
   c. Use **(d, n)** to decrypt the following message, encrypted with the private key **(e, n)**:
      3 50 14 84 60 1 6 70 12 1 6 9 50 33 25 50 70 4 47 3 50 4 47 4 6 57 47 13 47 33 33 1 84 47

2. Create your very own private and public key-pairs ***(e, n)*** and ***(d, n)***. You cannot use any of the ***n***'s we used as examples in class. Send me an email containing your *public* key. I will use it to encode a secret message just for you. Decode that message and send it back to me in clear text.