Kendall Higgins **Homework 12** **Due 12-06-2013**

1. (a) Determine if 4974199217205992594913974672547576084611207147431528771315085236189698440214954528329482377620793421364487970912534749552462968291564666197 3 is prime or composite. If its composite, 100 bonus points for factoring it

   (b) Determine if 3789186866313029034983589269443365320448941979493828186893015355452532400504686462167919233936609988795172996488167476378303470477190012978 9 is prime or composite. If its composite, 100 bonus points for factoring it

2. Suppose you recover the following message fragment: 2219590833935556136961840256299641979857410676648898806605753988566861735507417853208980433078124990652280463726000944320402830584404526099702640208121273505 77 from Alice to you. Decipher it knowing it was enciphered with RSA and enciphering key $e = 189762188521289806982440255853806985467207455508784384436845930469829652055413636419538700606906128905929941071789534309089127888593979192777473597925187954815$ and private keys: $p = 95139127937388670158602537392963922603869876132445168305964182778888426268 05279$ and $q = 77776194237322365019520820597002518113788540184868993927393378151442499614476749$.

3. (a) Express the number 634 in binary.

   (b) What number has the hexidecimal expression $1f20ae$.