Kenneth Swain **Homework 12** **Due 12-06-2013**

1. (a) Determine if 319636520486026584550607159944812600619709043475045163364182097270418435226329137003723785862386719978897100894119486836697222122955407754 99 is prime or composite. If its composite, 100 bonus points for factoring it

   (b) Determine if 18299328309536297381469909118683988951655923459549098820798332375430364914342775594634374573851011070477714657235154642306050438066422770 47 is prime or composite. If its composite, 100 bonus points for factoring it

2. Suppose you recover the following message fragment: 18016797736251819820083726320465267607808246704906326527569303608294502817555285658743726206557318592474313201724994851186752999174289509307533886034416212987 24 from Alice to you. Decipher it knowing it was enciphered with RSA and enciphering key $e = 17335679572881035421218972160098773262388882384422346753931188948738162384957449751857555673452951017547417985992717776061359196065519699147734872358820128544 39$ and private keys: $p = 9690273417611883834981378108123792610765151599162603691328672424377977976688330 3$ and $q = 4593340597387237539934123386574225839400215846385219499795123351700057000862954 7$.

3. (a) Express the number 921 in binary.

   (b) What number has the hexidecimal expression $1c8ebf$.