Julia Sterling **Homework 11** **Due 11-24-2014**

1. Compute $5^{143} \pmod{1565}$
2. Show the Euler's Theorem holds in the case where $a = 67$ and $n = 143$. That is show that $67^{\phi(n)} \equiv 1 \pmod{n}$.
3. Show that 6601 is a Carmicheal number.
4. (Start on Friday) Suppose you recover the following message fragment: 17070 from Alice to Bob. Break it knowing it was enciphered with RSA and the public keys are $n = 18373$ and enciphering key $e = 1441$. Once you all break it and combine your answers with your classmates in alphabetic order by your last name then you will get the total message.
5. Explain how you have divided up the work in your project. Who is doing what?