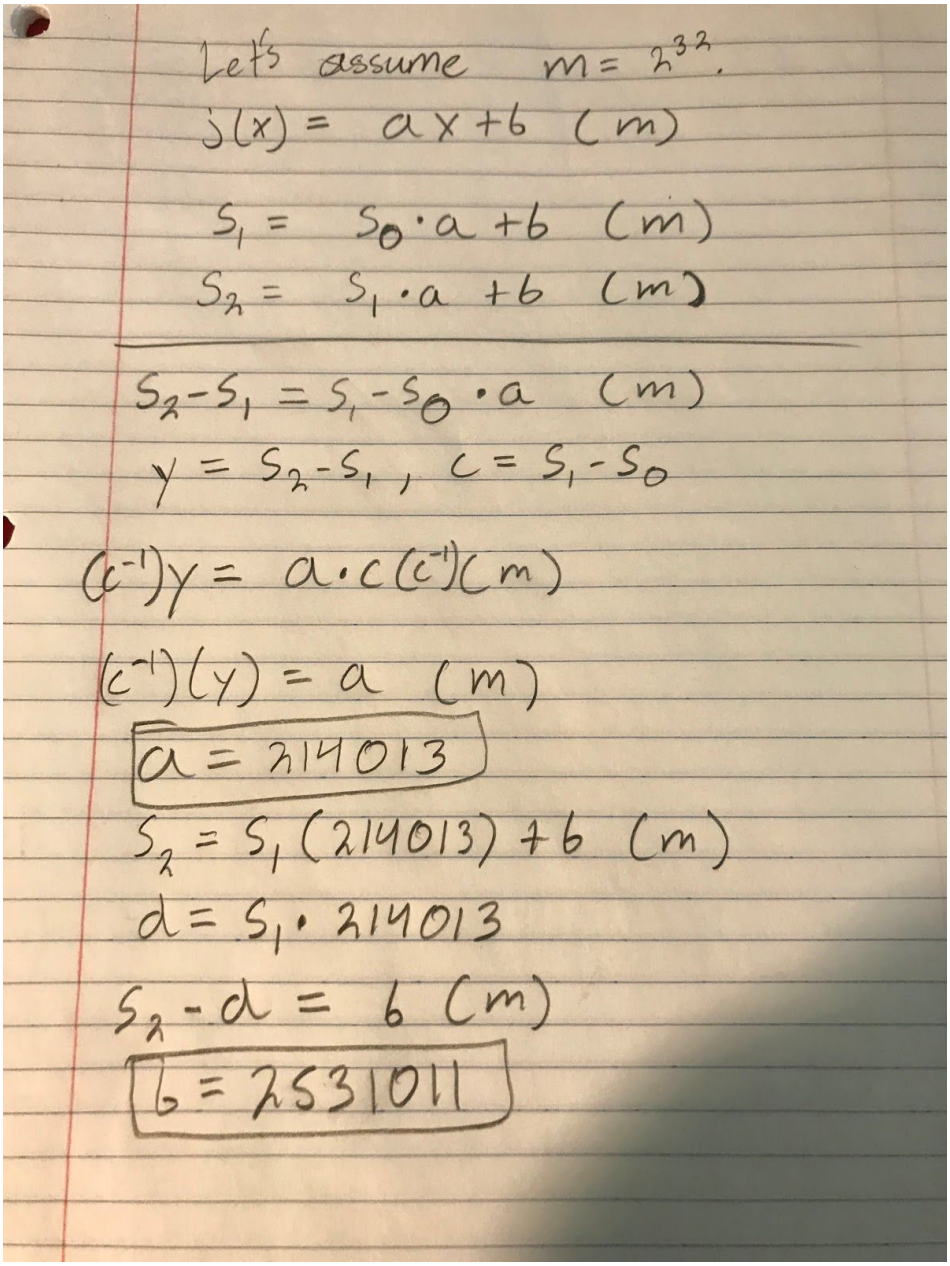
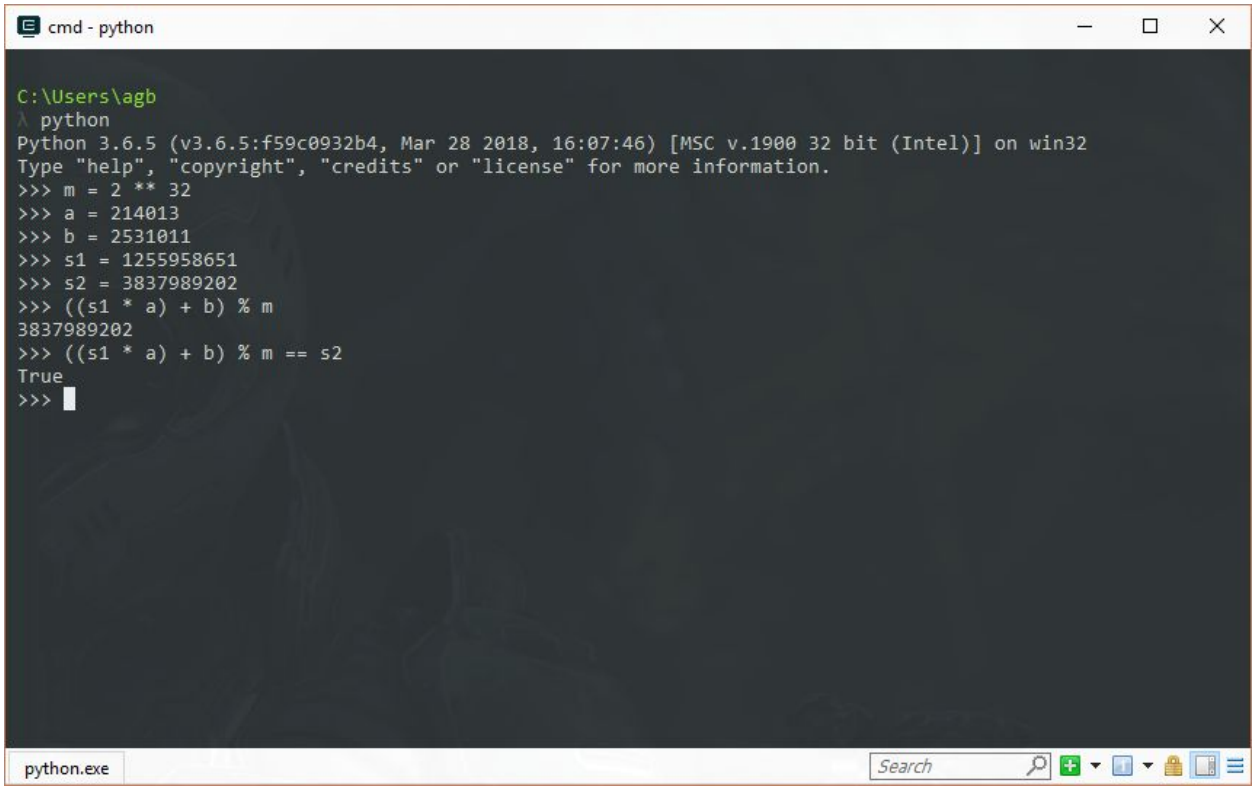
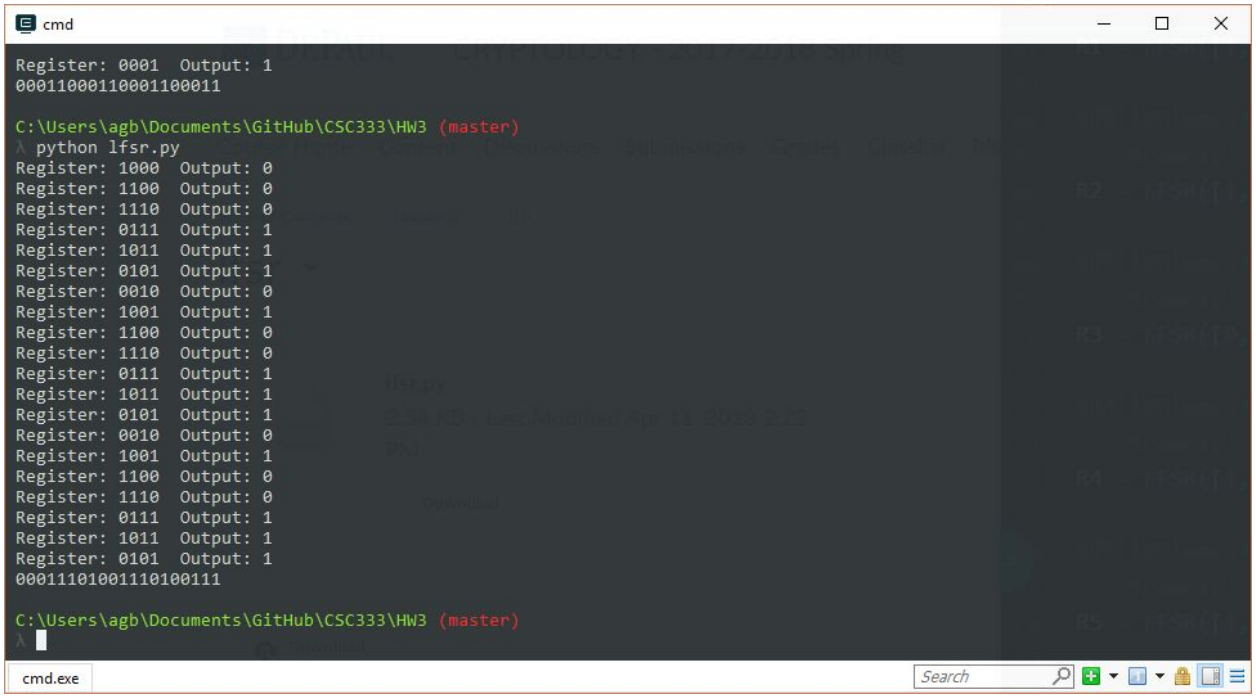
Andrew Burkus

1. Done.
2. 



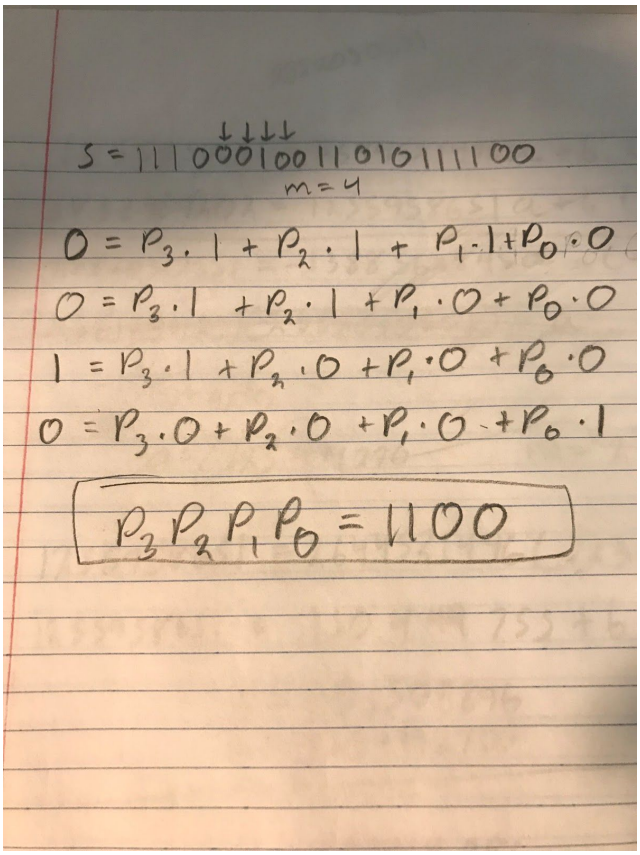
Here's the values being checked in Python.

3.

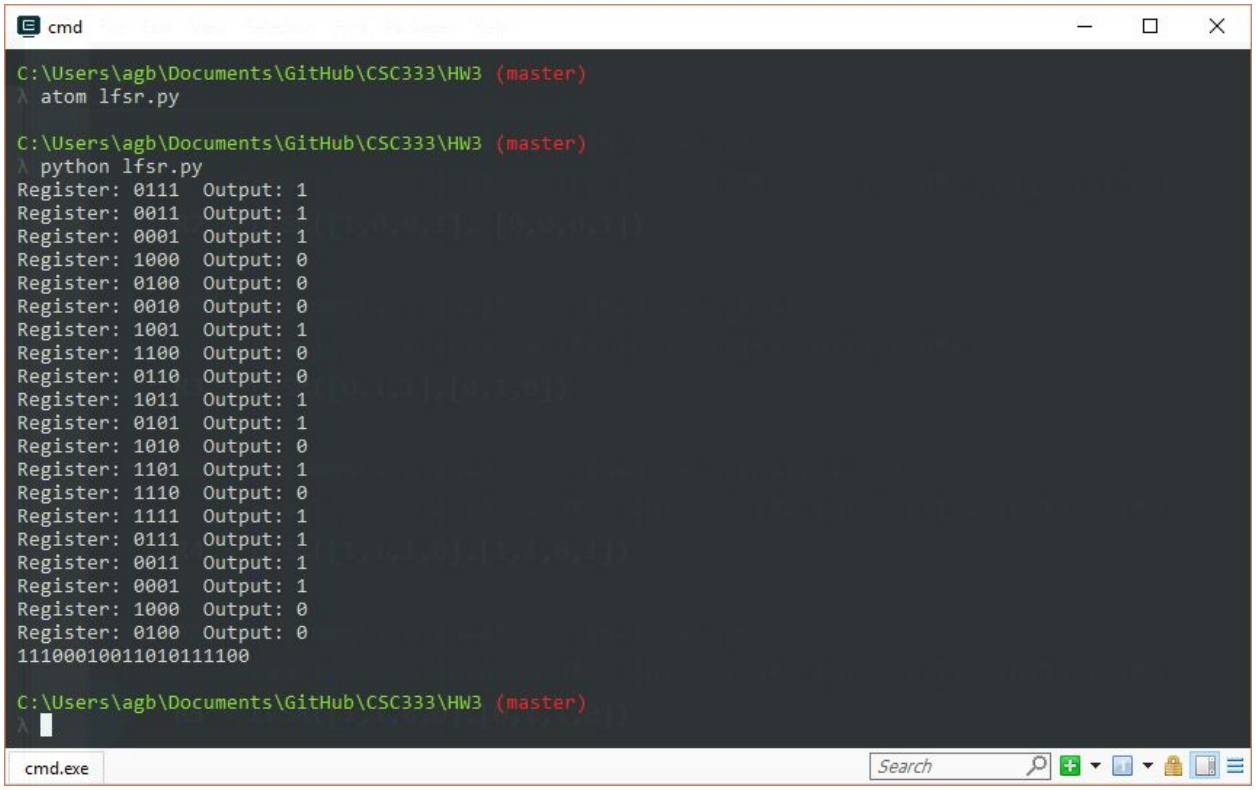


B. The maximal period is 2^m - 1 where m is the number of registers or ‘flip flops’. This means the period should be 2^4 - 1, or 15.
C. The first repeating sequence is 1110100, which is 7 bits long. The period is 7.

D. Yes, there is a pre-period. It is 000. The LFSR will print out its initial input always. This means that regardless of the program, the initial output will be some arbitrary sequence of bits which may or may not be part of the period. If it is part of the period, it is by coincidence.

4. 

I did the algebra mentally. A lot of it zeroes out line by line, so you can find the values of the program that way quite easily.



Here are the reproduced results you gave us on the homework. They match up exactly.