

Homework 8, due September 21

(1) A sequence generated by a length three recurrence starts 100101. Find the next four elements of the sequence.

(2) (Page 61, problem 11) The following sequence was generated by a linear feedback shift register. Determine the recurrence that generated it.

1, 0, 1, 0, 0, 1, 1, 0, 1, 1, 0, 0, 0, 1, 0, 0, 1, 0, 0, 0, 0, 1, 1,
1, 0, 0, 0, 0, 0, 1, 0, 1, 1, 1, 1, 1, 1, 0, 0, 1, 0, 1, 0, 1, 0, 0,
0, 1, 1, 0, 0, 1, 1, 1, 1, 0, 1, 1, 1, 0, 1, 0, 1, 1, 0, 1, 0, 0, 1,
1, 0, 1, 1, 0, 0, 0, 1, 0, 0, 1, 0, 0, 0, 0, 1, 1, 1, 0, 0, 0

(3) The following two ciphertexts were encrypted with the same one time pad (modulo 26). Decrypt. If you are stuck, shift the words svefg, zrffntr, and puncgref by 13; these words appear in the plaintexts.

CREWHBLIVZWGFEFOCLAGQDJCBPRSIUGJWQDMPVUSTZTEUCCPWTNNLSXLCKTABGWBULNSOIIGZP

NTTCNJMKLEQQIUQVVKTDGPFIXNHAJLFENAPPMAROIMPXTXTFJWGPCNOCOCYMPMAKQSFGBMBQFK