Problem set 2. (Assigned on September 26th)

1. Consider the recursion $X_n = X_{n-1}+X_{n-2}-X_{n-3}$, where $X_1 = 1, X_2 = -1, X_3 = 1$. Fill in the table for the first few terms of this sequence:

n	1	2	3	4	5	6	7	8	9
X_n	1	-1	1						

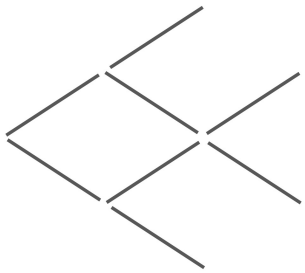
Can you guess the values X_{100} and X_{101}?

2. As in problem 1, consider the recursion $X_n = X_{n-1} + X_{n-2} - X_{n-3}$. What's different now is that the sequence starts with $X_1 = 1, X_2 = 1, X_3 = 2$. Fill in the table for the first few terms of this sequence:

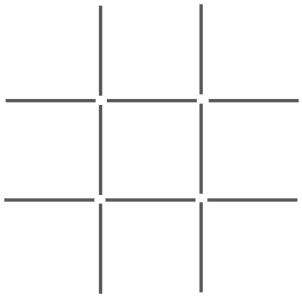
n	1	2	3	4	5	6	7	8	9	10	11
X_n	1	1	2								

Can you guess the values X_{100} and X_{101}?

3. Moving only three sticks, make the fish in the figure swim to the right!



4. Move four sticks to make three squares with no sticks left over.



5. Play the game of hex!