

16.18 In the iterative circuit below the input X is a 2's complement number and the output Y is the 2's complement of X . (x_0 and y_0 are the least significant bits.)

(a) Construct a transition table for typical cell. (Note that a_0 is 0.)

(b) Derive expressions for a_{i+1} and y_i .

(c) Construct a sequential circuit that will compute the 2's complement of its input. (Use D flip-flops. Assume the flip-flops are reset at the beginning of an input sequence.)

