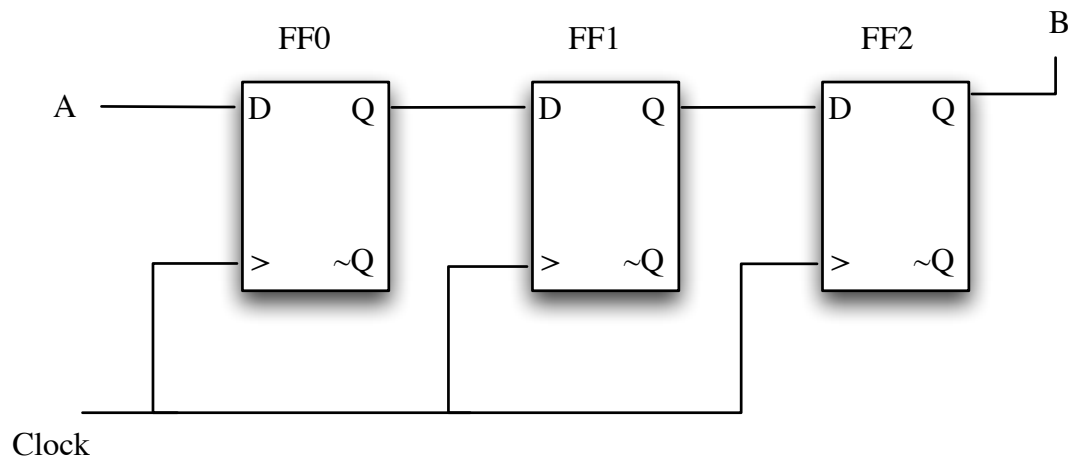


3. Given the following circuit, fill out the table below:



Clock Tick	A	FF0	FF1	FF2	B
0	1	0	0	0	
1	1				
2	1				
3	1				
4	1				
5	1				

4. Below is an incomplete state machine. Only the states have been drawn in. The circuit is a two bit counter, but with a twist. The circuit has 4 states: S0, S1, S2, S3 which correspond to the binary values 00, 01, 10, and 11 respectively. The circuit also has an input, x. If x is 0, the counter increments by 1 but if x is 1 the counter increments by 2. Assume that the counter performs non-saturating arithmetic (that is, $3+1 = 0$). The circuit also has an output z, which is 0 if the state represents an even number and 1 if the state represents an odd number. Please fill in the missing arcs to illustrate this wacky counter. Remember to annotate the arcs with the input value (x) that caused the transition and the output value (z).

