Solutions, Quiz 3, CSCI 210, Spring 2004

1.
```
public class Counter extends Thread {
    static int total = 0;

    public void run() {
        for(int i = 1; true; i++) total += i;
    }

    public static void main(String[] args) {
        Counter c = new Counter();
        c.start();

        while(true) {
            System.out.println(total);
            try { Thread.sleep(40);
            } catch(InterruptedException e) {}
        }
    }
}
```

2. In a D flip-flop, the memory value changes only at that instant that the $clock$ input becomes 1. In a latch, however, the memory value continues adopting any values given as long as its set input is 1. (In other words: In a D flip-flop, if the D input changes while $clock$ remains 1, the remembered value doesn't change. In a latch, however, any change to the D input while set is 1 results in an immediate change to the remembered value.)

3.

a	b	old Q	new Q	J	K
0	0	0	0	0	d
0	0	1	1	d	0
0	1	0	1	1	d
0	1	1	1	d	0
1	0	0	0	0	d
1	0	1	0	d	1
1	1	0	0	0	d
1	1	1	1	d	0
expressions				$\bar{a}b$	$a\bar{b}$