UW Math Circle

Week 3

1. In how many ways can you choose a subset of the numbers $1, 2, \ldots, n$ that do not contain a pair of consecutive numbers? (For example: $1, 3, 5, 6, 9$ does not qualify because it contains 5 and 6.)

2. In how many ways can you make an n-digit number of 0's and 1's that does not contain consecutive 1's?

3. In how many ways can you make a list of 1's and 2's that add up to n?

4. In how many ways can you make a list of odd numbers that add up to n? (Here, $1+3$ and $3+1$ count as different ways to write 4.)

5. In how many ways can you make a list of numbers that are larger than 1 and add up to n? (Again, $2+3$ and $3+2$ count as different ways to write 5.)

n	Problem 1	Problem 2	Problem 3	Problem 4	Problem 5
1					
2					
3					
4					
5					