Problem Set 9

Practice Questions in Grimaldi
5.2 - Q 1-4, 7, 15, 20
5.3 - Q 1-4, 5, 8, 10, 11, 16*
5.5 - Q 1-7

More difficult Questions:

1. The mappings in questions a-c are from **Z** (integers) to **Z** (integers) and the mapping in question d is from **ZxN** (integers x non-negative integers) to **Z** (integers), indicate whether they are: (i) A function, (ii) one-to-one (iii) onto
    a. $f(n) = n^2+1$
    b. $f(n) = \lfloor n/2 \rfloor$
    c. f(n) = the last digit of n
    d. $f(a,n) = a^n$

2. California has a population of 36 million people. How many people can be guaranteed to have the same three initials (first, middle, and last initial) *and* be born on the same day of the year?

3. A scratch and win ticket offers one of four prizes on each ticket, with equal probability of winning any one of the four. What is the probability of having at least one of each type of prize after scratching eight different tickets?