Section 6.1

26)a) 4 number digits, do not contain the same digit twice

There are 10 digits. 0-9

p(n,r) = n! / (n-r)!

p(10,4) = 10! / 6! = 5040

b) end with an even digit?

10 ways to represent first 3 digits. 5 way to represent the last digit.

10\*10\*10\*5 = 5000

c) have exactly three digits that are 9s

One possibility for 3 places, 9 for the last place. There are four ways to represent this.

1\*1\*1\*9\*4 = 36

34)a) n =10

2 possible images

2^10 = 1024

b) 3^10 = 59049

50)

String beginning with two 0s

1\*1\*2\*2\*2\*2\*2 = 32

String ending with three 1s

2\*2\*2\*2\*1\*1\*1 = 16

String with both

1\*1\*2\*2\*1\*1\*1 = 4

All options

32 + 16 - 4 = 44

Section 6.3

20)a) length 10 have exactly three 0s

C(10,3) = 10! / 3!(7!) = 120

b) more 0s than 1s

6,7,8,9,10 0s

C(10,6) + C(10,7) + C(10,8) + C(10,9) + C(10,10)

(10! / 6!4!) + (10! / 7!3!) + (10! / 8!2!) + (10! / 9!1!) + (10! / 10!0!)

= 386

c) at least seven 1s

C(10,7) + C(10,8) + C(10,9) + C(10,10)

= 176

d) at least three 1s

C(10,3) + C(10,4) + C(10,5) + C(10,6) + C(10,7) + C(10,8) + C(10,9) + C(10,10)

968

28)a) C(n,r) = 13!/(3!\*10!) = 286

b) P(13,10) = 13! / 3! = 1037836800

c) C(10,9)\*C(3,1) + C(10,8)\*C(3,2) + C(10,7)\*C(3,3)

10\*3 + 45\*3 + 120\*1 = 285

32)a) 4 men and 2 women, 3 men and 3 women, 2 men and 4 women, one man and 5 women, no men, all women

C(7,1)\*C(9,4) + C(7,2)\*C(9,3) + C(7,3)\*C(9,2) + C(7,4)\*C(9,1) + C(7,5)\*C(9,0)

7\*126 + 21\*84 + 35\*36 + 35\*9 + 21

= 4242

b) 4 men and 2 women, 3 men and 3 women, 2 men and 4 women, one man

C(7,1)\*C(9,4) + C(7,2)\*C(9,3) + C(7,3)\*C(9,2)

7\*126 + 21\*84 + 35\*36 + 35\*9

= 4221