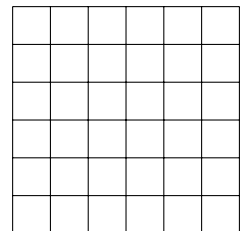**Math 101 - Worksheet for Section 10.2**

Name: _____

1. Alice, Bob, Charlie, Dave, and Emily are going to a concert, and they have tickets for the seats 48-51 on row E. Draw a tree diagram and list all the different ways can they sit on these seats if

   (a) Bob and Alice want to to sit next to each other.

   (b) Bob and Alice want to sit next to each other, and Dave and Emily want to sit next to each other.

   (c) Dave and Charlie don't want to sit next to each other.

2. Determine how many squares (of any size) are in the following figure.

3. Using Fundamental Counting Principle, how many 3 digit numbers are there that can be written using the digits 1,2, and 3.

4. How many 2 digits numbers are there? (04 is not a 2 digit number).

5. How many 3 digit numbers are there with no repeated digits? (041 is not a 3 digit number).

6. How many odd 3 digit numbers are there with no repeated digits?

7. How many 4 digit numbers are there using only digits 1,2, and 3?

8. How many 4 digit odd numbers less than 2000 are there using only digits 1,2, and 3?

9. Evaluate the followings:

   (a) $3! =$

   (b) $6! =$

   (c) $(6 - 3)! =$

   (d) $\dfrac{6!}{3!} =$

   (e) $\left(\dfrac{6}{3}\right)! =$

   (f) $10! =$