Foundations 12 Name: _____

Ch. 4 Review

1. Chelsea is planning on making me a necklace. She has 3 colours of beads (purple, turquoise and yellow), 3 shapes of each (circle, heart and star) and 2 colours of string (black and white). Draw a tree diagram and determine the number of necklace combinations she could make.

2. License plates are created so that the first 3 characters have to be a letter and the last 3 characters have to be a digit (0-9). You can not use the letters O or I.

   a) How many license plates are possible?

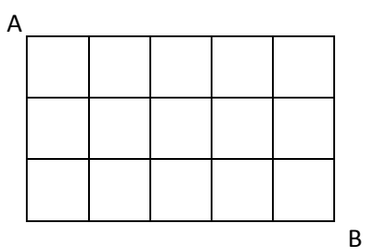
   b) Suppose each character can be used only once. How many possibilities are there?

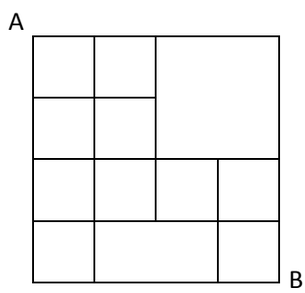
3. There are 10 toppings available at a Sundae ice cream bar. How many ways can you choose 3 toppings?

4. Ten students apply for student council. How many possible ways are there for the president, vice-president and secretary to be chosen?

5. How many permutations are there of all the letters in BANANA?

6. How many different ways are there to move from point A to point B if you can only move east and south?





7. Simplify the following expressions.

   a) $\frac{9!}{6!}$

   b) $\frac{(n+5)!}{(n+3)!}$

8. Solve for n: $\frac{(n-2)!}{(n-3)!}=5$

9. A muffin shop offers 11 varieties of muffins. Suppose a customer orders half a dozen assorted muffins. How many different combinations are there?

10. A volleyball team has 12 members.

    a) In how many ways can the coach choose the starting 6 players?

    b) In how many ways can the coach position the 6 starting players?

11. From a deck of 52 cards, how many different 5-card hands can be formed in each case?

    a) with exactly 3 Kings

    b) with fewer than 3 Kings

    c) with more than 3 Kings

12. A committee of 4 people is to be chosen from a group of 10 people- 6 men and 4 women. In how many ways can the committee be chosen so as to include

    a) exactly 3 women?

    b) at most 2 men?

Answers: 1) 18 2a) 13 824 000 b) 8 743 680 3) 120 4) 720 5) 60 6a) 56 b) 44 7a) 504 7b) (n+5)(n+4)
8) n=7 9) 462 10a) 924 b) 720 11a) 4512 b) 2 594 400 c) 48 12a) 24 b) 115