U8

Permutations and Combinations

QUIZ 1

1. Licence plates in Mongolia consist of 6 characters which must satisfy the following criteria:

\* the first letter is any letter other than I or O

\* next is three digits, the first of which cannot be zero

\* the license plate ends with 2 letters

\* no digit or letter can be repeated on the license plate

How many license plates exist that meet these criteria?

2. Consider the digits 2, 3, 5, 6, 7, and 9.

a) If repetitions are not permitted, how many 3-digit numbers can be formed?

b) If repetitions are not permitted, how many 3-digit numbers are

i) less than 400? Ii) even?

iii) odd? Iv) multiples of 5?

3. Solve the following equations

a)  b) 

4. Find the number of permutations of the letters in the **KITCHEN** if the letters K, C, and N must be together but not necessarily in that order.

5. A race at the Olympics has 8 runners. In how many orders can their countries finish if there are 2 Canadians, 1 Russian, 1 German, 1 Mexican, and 3 American athletes?