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## Math 4363 - Combinatorics Homework 1

Due in Class - Thursday 31 January 2019

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1. How many different 6 digit numbers can be constructed from the numbers 2, 2, 2, 3, 5, 8, using each number exactly once?
  
2. How many integers satisfy all of the following properties:
  - (a) greater than 5040;
  - (b) all the digits are distinct; and
  - (c) the digits 2 and 7 do not occur.
  
3. How many 6 digit numbers are there such that the digits are distinct numbers chosen from the set  $\{1, 2, \dots, 9\}$ , and such that the digits 2 and 3 do not appear consecutively in either order.
  
4. How many ways are there to arrange 7 consonants and 3 vowels such that no two vowels appear consecutively?
  
5. In how many ways can 4 men and 8 women be arranged around a table so that between every pair of consecutive men sits exactly 2 women?