

# Homework 7

Math 118 section 004

Due: Monday, April 14th, 2008

1. For each of the following experiments, write out the sample space, as well as the size ( $n$ ) of the sample space.
  - (a) A coin is tossed ten times and the number of times it lands heads up is counted.
  - (b) A student answers 4 true/false questions on a test. (It doesn't matter if he's right or wrong - just his possible answers)
  - (c) A student answers 4 multiple choice questions (either a, b, or c) on a test.



4. Canadian postal codes are 6 digits long. They have the form: letter number letter number letter number (eg, my old school's postal code was B0P 1X0). Answer the following questions:
- (a) How many postal codes are possible?
  - (b) How many postal codes are palindromes?
  - (c) How many postal codes don't have any repeated digits?

5. Without using a calculator, simplify these as much as possible:

(a)  $\frac{21!}{19!}$

(b)  $\frac{41!+39!}{40!}$

(c)  $\frac{5!}{3! \times 2!}$

*Hint:*  $\frac{1}{40} = .025$