Telephone PINs
M117, November 11, 2011 (due November 14, 2011)

Your name: ___________________________________

Assume that people calling in to access their bank accounts can use the phone keypad to represent the letters in their PIN numbers as shown below. (PINs can contain letters and numbers, and allow repeats.)

(1) How many different PINS are represented by 5731?

(2) How many different PINS are represented by 1019?

(3) How many different PINS (CONTAINING NO REPEATS) are represented by 2133?

(4) Each PIN corresponds to a 4-digit sequence. How many PINs are there with no repeated digit?