Solutions to Attendance Quiz # 1 for Dr. Z.'s Number Theory Course for Sept. 5, 2013

1. Using *unary* (no credit for other methods!), compute

1111×111

Sol. to 1: 1111 1111 1111 = 111111111111.

2. Write the integers 0 through 4 in von-Neumann notation

Sol. to 2.:

$$0 := \{\} \quad ,$$

$$1 := \{\{\}\} \quad ,$$

$$2 := \{\{\}, \{\{\}\}\} \quad ,$$

$$3 := \{\{\}, \{\{\}\}, \{\{\}, \{\{\}\}\}\} \quad ,$$

$$4 := \{\{\}, \{\{\}\}, \{\{\}, \{\{\}\}\}, \{\{\}, \{\{\}\}, \{\{\}, \{\{\}\}\}\}\} \quad .$$

3. List some **natural** members of Frege's class representing three .

Sol. to 3: There (infintely) many possibilities. $\{-1, 0, 1\}$, $\{A, B, C\}$ are two of them.