

Attendance Quiz # 2 for Dr. Z.'s Number Theory Course for Sept. 9, 2013

NAME: (print!) _____

E-MAIL ADDRESS: (print!) _____

1. (i) Guess a nice formula by inspection (ii) Give a rigorous proof of your guessed formula, using the Fundamental Theorem of Discrete Calculus (iii) Give a fully rigorous Zeilberger-style proof.

$$\sum_{i=1}^n (i-1)i \quad ,$$

2. Prove the following identity (i) using the Fundamental Theorem of Discrete Calculus (ii) using a Zeilberger-style proof via checking special cases.

$$\sum_{i=1}^n i^2 = \frac{n(n+1)(2n+1)}{6} \quad .$$