Quiz 2
CSE 101, Spring 2002

Issued Tuesday, April 16, Due: in class

State your answers legibly and concisely. Your solutions will be graded on correctness, elegance, clarity and originality. Your proofs should avoid getting bogged down in too much detail. Please note that the work handed in must be your own. Your handwriting must be legible and answers must be in proper order for full credit to be awarded. Every problem is 25 points.

Problem 1. What is the sum of the following numbers?

\[ 50 + 53 + 56 + 59 + \ldots + 3080 + 3083 + 3086 = ? \]

Problem 2. Find \( T_{100}, \) if \( T_1 = 4, T_n = T_{n-1} + n - 3. \)

Problem 3. Prove by induction that

\[ \sum_{i=1}^{n} i^2 = \frac{1}{3} n^3 + \frac{1}{2} n^2 + \frac{1}{6} n. \]

Problem 4. Give tight asymptotic bound for \( T(n) \) if \( T(n) = 7T(n/2) + n^2 - 50n + 101 \)