1a. Given the recurrent equation \( t_n = 2t_{n-1} + n \) and \( t_0 = 0 \), give the values for \( t(0), t(1), \ldots, t(7) \).

1b. Translate the recurrent equation into C statements, where variable \( n \) using register R3, and variable \( t \) using register R4.

1c. Translate 1b into 8051 assembler and run it using as31. **Hand-in** the output listing with comments showing the C statements related to the assembler code.

1d. Run your code in the J51 simulator for \( t(7) \). **Hand-in** a screen print of the simulator showing the final register values.