

Math 491, Problem Set #8
(due 10/7/03)

1. Let a_n be the number of domino tilings of a 4-by- n rectangle, with $n \geq 0$ (we put $a_0 = 1$ by convention).
 - (a) Prove that the sequence a_0, a_1, \dots satisfies a linear recurrence relation of order 16 or less.
 - (b) Prove that the sequence a_0, a_1, \dots satisfies a linear recurrence relation of order 8 or less.
 - (c) Prove that the sequence a_0, a_1, \dots satisfies a linear recurrence relation of order 6 or less.
 - (d) Prove that the sequence a_0, a_1, \dots does not satisfy a linear recurrence relation of order 2 or less.