

February 8, 2008

Midterm - Friday February 15, 2008

Problem 3.55

Let $\{a_n\}_{n \geq 1}$ be a sequence satisfying $a_1 = 1$ and $a_2 = 8$, and

$$a_n = a_{n-1} + 2a_{n-2} \quad \text{for } n \geq 3.$$

Prove that

$$a_n = 3 \cdot 2^{n-1} + 2(-1)^n$$