

Math 270 - Basic Discrete Mathematics
Practice Quiz on Section 5.6

Directions: Answer the problems given below.

1. Find the first four terms of the sequence defined recursively as

$$a_1 = 1, a_2 = 2, \text{ and } a_k = a_{k-1} + a_{k-2} + 2 \text{ for all } k \geq 3.$$

2. Recall that F_n denotes the n th Fibonacci number, defined in Example 5.6.6. Use mathematical induction to prove that for all integers $n \geq 0$,

$$F_{n+2}F_n - F_{n+1}^2 = (-1)^n.$$

(*Hint: Express F_{n+2} and one F_{n+1} above using the Fibonacci recurrence.*)