This relation arose because

$$x^3 - x^2 - 2x - 2$$

is a factor of

$$x^4 - 3x^2 - 4x - 2.$$

Since

$$x^3 - x^2 - 2x - 2$$

has a real zero θ between 2.2 and 2.3, it follows that

$$f(n) > (2.2)^n$$

for all sufficiently large n.

REFERENCE

1. Edward A. Parberry, "A Recursion Relation for Populations of Diatoms," *The Fibonacci Quarterly,* Vol. 7, No. 4 (Dec. 1969), pp. 449–456.

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which tends to

$$\log \frac{1+\sqrt{5}}{2}$$

as $n \to \infty$ and this completes the proof.

In addition we want to mention another interesting property possessed by the sequences of the previous theorems. This property can be shown by applying a result of Vanden Eynden (see [2] p. 307): Let (C_n) be a sequence of real numbers such that the sequence (C_n/m) is u.d. mod 1 for all integers $m \geqslant 2$. Then the sequence $([C_n])$ of integral parts is u.d. in the ring of integers $\mathbb{Z}$.

Theorem 4. The sequences

$$([\log F_n^{1/k}]), \qquad ([\log H_n H_n^*]) \qquad \text{and} \qquad ([\log (H_n + H_n^*)])$$

are u.d. in $\mathbb{Z}$.

Proof. It is easily seen that for all non-zero integers m the expressions

$$\frac{1}{m}\log F_n^{1/k}, \quad \frac{1}{m}\log (H_n H_n^*) \quad \text{and} \quad \frac{1}{m}\log (H_n + H_n^*)$$

satisfy the condition in van der Corput's Theorem.

REFERENCES

1. William Webb, "Distribution of the First Digits of Fibonacci Numbers," *The Fibonacci Quarterly,* Vol. 13, No. 4 (Dec. 1975), pp. 334–336.
2. L. Kuipers and H. Niederreiter, "Uniform Distribution of Sequences," 1974.

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