so that

$$a(n,n) = \sum_{r+s=n} \binom{n+r}{r}\binom{n+s}{s}\alpha^r\beta^s$$

$$= \sum_{r=0}^{\infty} \binom{n+r}{r}\binom{2n-r}{n}\left(-\frac{\omega^2}{\sqrt{-3}}\right)^r\left(\frac{\omega}{\sqrt{-3}}\right)^{n-r}$$

$$= \frac{\omega^n}{(\sqrt{-3})^n}\sum_{r=0}^{n} \binom{n+r}{r}\binom{2n-r}{n}(-\omega)^r .$$

[Continued from page 496.]

GENERALIZED BASES FOR REAL NUMBERS

3. S. Kakeya, "On the Partial Sums of an Infinite Series," Sci. Reports Tohoku Imp. U. (1), 3 (1914), pp. 159-163.
4. J. L. Brown, Jr., "On the Equivalence of Completeness and Semi-Completeness for Integer Sequences," Mathematics Magazine, Vol. 36, No. 4, Sept.-Oct., 1963, pp. 224-226.
5. I. Niven, "Irrational Numbers," Carus Mathematical Monograph No. 11, John Wiley and Sons, Inc., 1956.
6. I. Niven and H. S. Zuckerman, An Introduction to the Theory of Numbers, John Wiley and Sons, Inc., 1960.

CHALLENGE

"In what way does the cubic congruence

$$x^3 - 15x + 25 \equiv 0 \pmod{p}, p \text{ a prime}$$

relate to the Fibonacci numbers?

Generalize to other recurring series."

John Brillhart and Emma Lehmer