REFERENCES

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(Continued from p. 200.)

SOLUTIONS TO PROBLEMS

1. For any modulus m, there are m possible residues $(0,1,2,\cdots,m-1)$. Successive pairs may come in m^2 ways. Two successive residues determine all residues thereafter. Now in an infinite sequence of residues there is bound to be repetition and hence periodicity.

Since m divides T_0, it must by reason of periodicity divide an infinity of members of the sequence.

2. $n = mk$, where m and k are odd. V_n can be written

$$V_n = (r^m)^k + (s^m)^k ,$$

which is divisible by $V_m = r^m + s^m$.

3. $r = 2 + 2i\sqrt{2}$, $s = 2 - 2i\sqrt{2}$.

$$T_n = \left(\frac{2 - 3i\sqrt{2}}{16}\right) r^n + \left(\frac{2 + 3i\sqrt{2}}{16}\right) s^n .$$

4. The auxiliary equation is $(x - 1)^2 = 0$, so that T_n has the form

$$T_n = An \times 1^n + B \times 1^n = An + B .$$

5. $$T_n = 2^n\left[\left(\frac{b - 2a}{4}\right)n + \frac{4a - b}{4}\right] .$$

(Continued on p. 224.)

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