(Continued from page 112)

P6. (Conjecture). If $a_1 < a_2 < \dots$ is a sequence of positive integers with $a_n / a_{n+1} \to 1$ and if for every d, every residue class (mod d) is representable as the sum of distinct a's, then at most a finite number of positive integers are not representable as the sum of distinct a's.

P. Erdös

SOLUTIONS

Problem 5. of sixth issue of Newsletter C.M.C.

Prove that for every positive integer n, the expression

$$(3+2\sqrt{2})^{2n-1} + (3-2\sqrt{2})^{2n-1} - 2$$

is a square.

L. Moser

Solution. Set $a = \sqrt{2}+1$, $b = \sqrt{2}-1$. Then $a^2 = 3+2\sqrt{2}$, $b^2 = 3-2\sqrt{2}$ and $ab = 1$. Hence

$$(3+2\sqrt{2})^{2n-1} + (3-2\sqrt{2})^{2n-1} - 2 = (a^{2n-1} - b^{2n-1})^2 .$$

Since 2n-1 is odd, it is clear that $a^{2n-1} - b^{2n-1}$ is an integer.

R. Ree

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