P 1/73. If x and y are positive and unequal, prove that

(i) $$\frac{x}{2y+x} + \frac{y}{2x+y} > \frac{2}{3} ,$$

(ii) $$\frac{x}{y+2x} + \frac{y}{x+2y} < \frac{2}{3} .$$

(P.H.Diananda)

P 2/73. Find the largest number that can be obtained as a product of two positive integers whose sum is a given positive integer s. (L.Y.H.Yap)

P 3/73. Let $m_1, m_2, \ldots$ be a sequence of positive integers. Must $\frac{m_1^2+\ldots+m_n^2}{(m_1+\ldots+m_n)^2}$ necessarily converge to zero as n tends to infinity? If not, what is a necessary and sufficient condition for it to converge to zero? Can this problem be generalised? (L.H.Y. Chen)

P 4/73. Prove $$\int_0^x \frac{t^n}{1+t}\,dt = \int_0^x \frac{(x-t)^n}{(1+t)^{n+1}}\,dt .$$

(K.M. Chan)

P 5/73. Let $p(x) = a_0 + a_1x + \ldots + a_nx^n$ be a polynomial with integral coefficients, and let x_1 be an even integer and x_2 an odd integer. If $p(x_1)$ and $p(x_2)$ are both odd, prove that $p(x)= 0$ has no integral roots.

[Hint: Try, for example $x_1 = 0$, $x_2 = 1$.] (T.A.Peng)

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   (i) *Operations Research*, 1965 - 1973.
   (ii) *Directory of Operations Research Society of America*, 1966 - 1972.
   (iii) *International Abstracts in Operations Research*, 1965 - 1971.
   (iv) *Bulletin of the Operations Research Society of America*, 1965 - 1969.
   (v) *Transportation Science*, 1967 - 1971.
   (vi) *Management Science*, 1967 - 1972.

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In our next issue, we shall start a book section where summary book reviews would be given. These reviews would include comments which would be useful to students and teachers of mathematics. Publishers and authors of mathematical books of *any* level are invited to send them to the Editors, Mathematical Medley, c/o Department of Mathematics, University of Singapore.