PROBLEMS FOR SOLUTION

P 110.   Find the order, class, number of nodes, and number of cusps of the curve

$$x_1^{2/3} + x_2^{2/3} + x_3^{2/3} = 0$$

in the complex projective plane.

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P 111.   Let G denote the set of polynomials f of the form $f(t) = t^n + \sum_{k=1}^{n} c_k t^{n-k}$ which have n real roots in $[-1, 1]$, not necessarily distinct. Let g_k $(k = 0, \ldots, n)$ denote the following element of G: $g_k(t) = (t+1)^k (t-1)^{n-k}$.   Prove that G is a subset of the convex hull of the g_k.

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P 112.   It is known from results of L. Moser and J J. Lambek [Proc. Amer. Math. Soc. 4 (1953), 544-545], among others, that every monotone, real-valued, multiplicative arithmetic function $f \not\equiv 0$ is of the form $f(n) = n^\alpha$ for some non-negative real number α.   Prove the stronger result that every monotone, real-valued, generalized multiplicative [Amer. Math. Monthly 72 (1965), 1140] arithmetic function $f \not\equiv 0$ is of the form $f(n) = n^\alpha$ for some non-negative real number α.

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