# YOUR LETTERS

Dear Sir,

During an investigation of polynomials, my class came across a problem which required finding a polynomial with roots that were reciprocals of the original polynomial's roots (See Mulhall and Smith-White Part 1 ch. 6 q. 8.)

The answer turned out to be the same polynomial with its coefficients changed. Thus

$A_0 + A_1x + A_2x^2 + \ldots + A_nx^n$ became

$A_n + A_{n-1}x + \ldots A_1x^{n-1} + A_0x^n$ where neither polynomial has 0 as a root.

I assumed that if the coefficients were "symmetrical" i.e. $A_n = A_0$, $A_{n-1} = A_1$ etc then the roots would be in pairs of reciprocals. Given an odd number of roots, the unpaired was $-1$. (Its own reciprocal) $(-1) \times (-1) = 1$.

Other readers may be interested in trying to prove this as I am not totally sure of my solution.

Laurie Gellatly,
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Dear Sir,

The following is my solution to the paradox in "A Large Can of Paint."

The paint inside the can is "coating" the inside surface with a thickness of less than $\Delta$ (because the can is narrower than $2\Delta$!) X has been chosen sufficiently large so that the volume "coated" less than $\Delta$ counteracts the volume which is "coated" greater than $\Delta$.

As $\Delta \to 0$, $x \to \infty$. Therefore this problem is overcome if $\Delta = 0$.

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[Other readers' contributions may be found scattered throughout this issue.

You are invited to write to Parabola on any piece of Mathematics you find interesting. Also, following the suggestion of a student, I will be prepared to answer in this section any problems (Mathematical!) with which you want help. — Editor]