

Re: Writing a real valued expression in a form that does not include $\sqrt{-1}$

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- *From:* William Elliot <marsh@xxxxxxxxxxxxxxxxxxxxx>
 - *Date:* Sun, 11 May 2008 21:23:37 -0700
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On Sun, 11 May 2008, Szabolcs wrote:

On May 11, 7:41 pm, "G. A. Edgar" <ed...@xxxxxxxxxxxxxxxxxxxxxxxxxxxxx>

Szabolcs <szhor...@xxxxxxxxxx> wrote:

I was wondering if the following real-valued expression (obtained with a CAS) could be written in a form that does not include the imaginary unit (denoted by i here). I would like to do this without using trigonometric functions (actually this expression is equal to $\cos(\pi/9)$)

$$(1/2)*((1 + i*\sqrt{3})/2)^{1/3} + (4*(1 + i*\sqrt{3}))^{-1/3}$$

Is this possible?

casus irreducibilis

Ah, thanks for the pointer. This is what happens when one just blindly relies on CASs instead of learning something about 3rd order equations.

Computers promulgate artificial stupidity.

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The equation was:

$$-(1/2) - 3*x + 4*x^3 == 0$$

Of course it has one real root.

Likely your favorite $\cos \pi/9$.

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