

## Finding the zeros of a quadratic equation using the TI-Nspire™ CAS (Tutorial E6)

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You can find the solutions of an equation very quickly using the TI-Nspire CAS software. Keep in mind that the

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example in this tutorial will work properly only if you are using the CAS version, with built-in Computer Algebra

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System capabilities. Among other differences, the CAS version allows simplified equations to keep their mathematical

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structure, and symbols such as pi and variables can be symbolically recognized and simplified. I'll click the

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Insert button and choose Calculator. Next, in the Document Tools, I'll click Algebra, and then select Solve. This

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will return the "solve" function to the entry line with a set of open parentheses. There are two arguments required

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before the software can execute this function. The first is my equation, so I need to enter that first. In this

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case, I want to find the solutions to the equation  $2x^2-5x+2=0$ , so I'll press "2", then "x" followed by the Shift

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key, and then "6". I'll press "2" for the exponent, and then the right arrow to move out of the exponent. Now

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I'll press "-", then "5", and then "x" and then "+2". Now I'll press the "=" key, and then zero. Now that we've entered

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the equation, we need to give the solve function the second argument, which is the variable that it's supposed to solve.

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In this case, my expression only has one variable,  $x$ , so I'll press the comma to separate the arguments, and then

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my variable, " $x$ ". To evaluate this function, I'll press the Enter key to return the solutions that will make my

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equation true. Here, I can see that this equation is true when  $x$  equals either  $1/2$  or  $2$ . If we had done this with

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the TI-Nspire, we would have used the nSolve command, and it would have returned only one of the two solutions. Remember

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that TI-Nspire CAS software has all the functionality of TI-Nspire technology plus built-in Computer Algebra

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System capabilities.

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