TI-nspire™

Grade level: 9-12
Subject: algebra 1
Time required: 60 minutes

Solving Equations with a Calculator? No Way!

by – Jessica J. Kachur

Activity overview

This activity will take students through the process of solving equations. In this activity students will solve one step equations, review notations presented to them by the calculator, and truly discover the results of "undoing" an equation.

Concepts

Number sense, problem solving, solving linear equations

Teacher preparation

It is imperative (in my opinion) that this is not the first time students are learning how to solve one-step equations. Ideally this activity is done after students are pretty familiar with solving one step equations, however, they do not have to be proficient before they start and, as a matter of fact, I would prefer my students were not proficient when we undertake this activity. No specific prep is required. However, I recommend that the teacher complete this activity before giving it to students and think about specific questions that their students may pose.

Classroom management tips

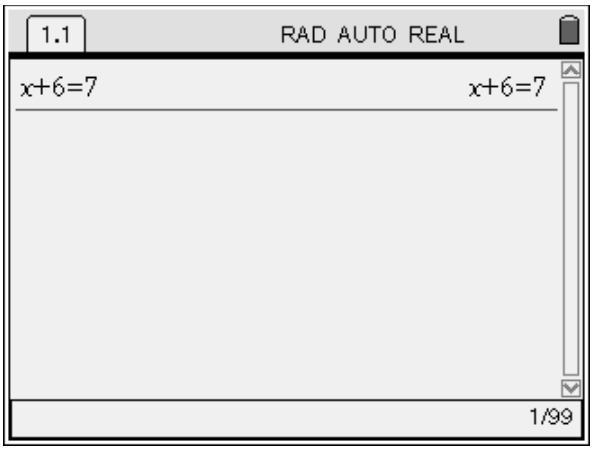
I recommend that students be placed in groups of two so that they can compare and contrast their experiences with solving equations.

TI-Nspire Applications

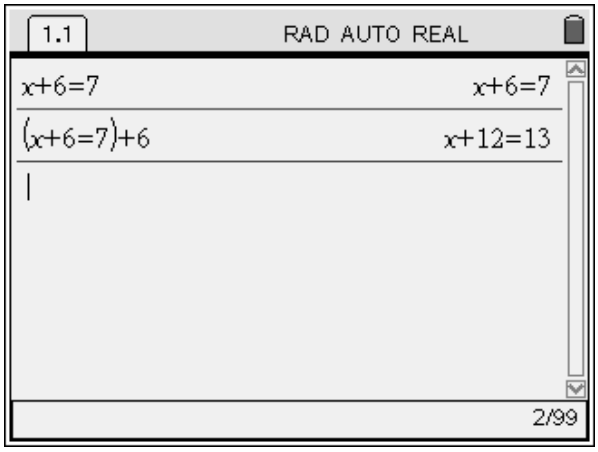
This activity is meant to be completed primarily using the TI-Nspire CAS.

Step-by-step directions

1. Before you begin, it is important to go through the steps to solving one-step equations.
2. Press the ⌂ Key.
3. Select 6: New Document.
4. Select 1: Add Calculator.
5. Enter the equation *x + 6 = 7.*
6. Remember, the purpose of solving equations is to get the variable on one side of the equals sign by itself so that you know what that variable equals. What might you do to this equation to solve for x?

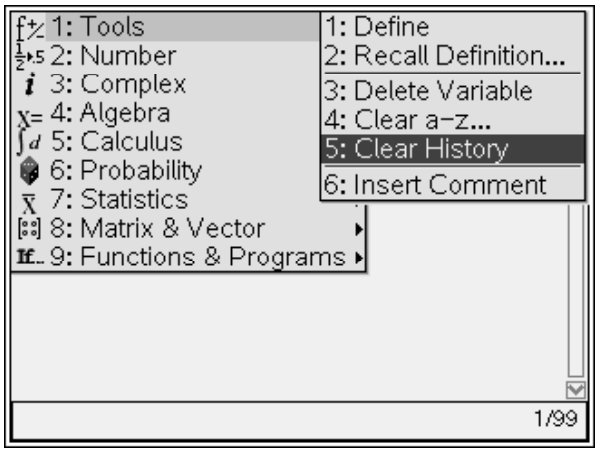


7. What happens if you add 7 to the equation? With the equation displayed on your screen, press + and 6 and then enter. Your screen should look like the one at right.



QUESTION 1: What does it mean when your screen says (x+6=7)+6? Why are their parentheses around the entire equation you first put into the calculator?

QUESTION 2: Did adding 6 to the equation help you get the variable by itself?



8. What could you do to get closer to finding out what the variable equals? Try this on your calculator.

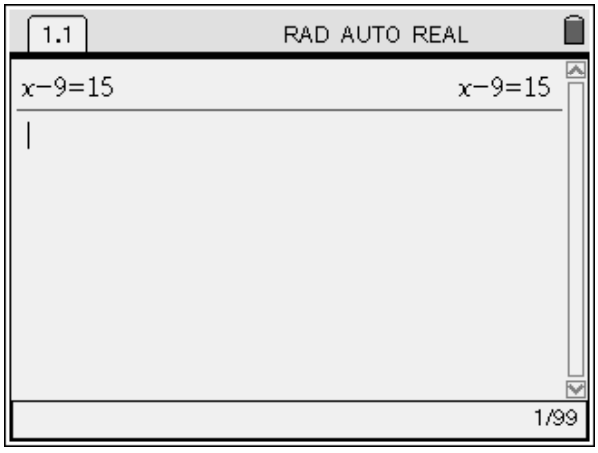
   x = _____

9. Press menu, 1: Tools, and 5: Clear History.

10. Enter in the equation *x – 9 = 15.*

11. Using the information from our first problem what, might you try to help you find the answer to this equation?

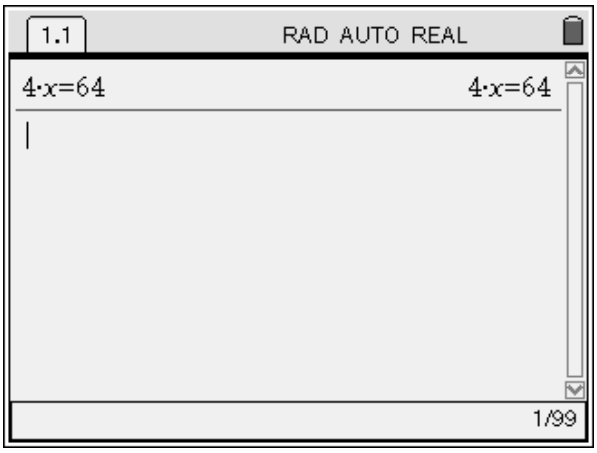
QUESTION 3: Record the steps you tried below and record you answer.



x = _____

12. Press menu, 1: Tools, and 5: Clear History.

13. Enter into the calculator 4x = 64.



QUESTION 4: You were supposed to enter in 4x = 64. Why does your screen show 4•x=64?

14. Using the information from our previous problems, what might you try to help you find the answer to this equation?

QUESTION 5: Record the steps you tried below and record you answer.

x = _____

15. Solve the following three equations using the calcuator as a helper.

x + 37 = 196 x – 49 = 364 8x = 768

x = _____ x =_____ x = _____

Activity extensions

- *This activity can be backed up with a worksheet asking students to use these skills a few more times. However, it is not anticipated or suggested that students become dependent on using the calculator to solve algebraic problems. The goal here is for students to see that when you add to an equation, you are adding to the entire equation, both sides of the equal sign. In additon, that when you repeat the operation that is in the problem, you get farther away from an answer, instead you must do the opposite operation. When doing this by hand, some students won't actually do the addition or subtraction and assume they have the right answer.*
- *This activity can be extended to two, three and four step equations.*