

# TI-Nspire

## Algebra - substitution

### **Aim**

To provide an overview of substituting into algebraic expressions on the calculator.

### **Calculator objectives**

By the end of this unit, you should be able to:

- evaluate algebraic expressions by assigning values to variables
- evaluate algebraic expressions using the with ( | ) operator
- make a simple function machine

### **Contents**

Algebraic substitution  
Function machines

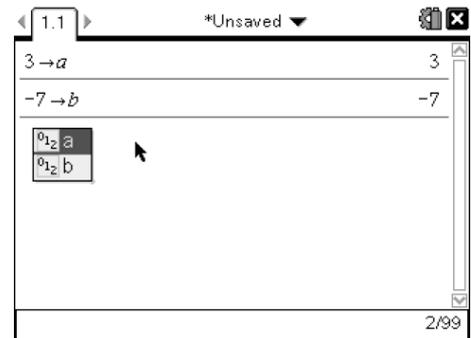


## Substitution

The TI-Nspire is not able to perform algebraic manipulation. However, it is able to evaluate expressions:

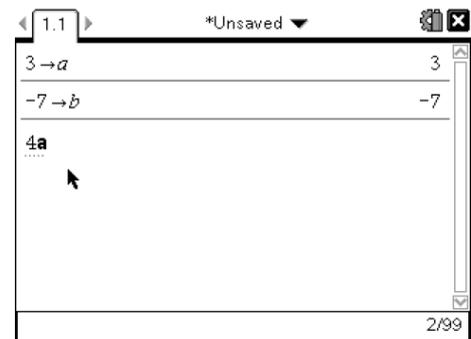
1. Store the value 3 as variable  $a$  and  $-7$  as  $b$ .

You can check to see what variables have assignments by pressing the  $\text{[stop/Var]}$  key. Notice that both  $a$  and  $b$  have the numbers '0 1 2' to the left of them. This tells us that the variables  $a$  and  $b$  have number assigned to them (as opposed to lists, or matrices).

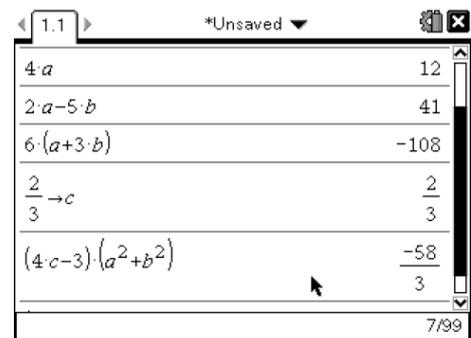


2. Now evaluate an expression, say " $4a$ ". You can either use the green letter keys to type ' $a$ ', or press the  $\text{[stop/Var]}$  key and select  $a$  from there.

Pressing enter evaluates the expression with the given value of  $a$ .



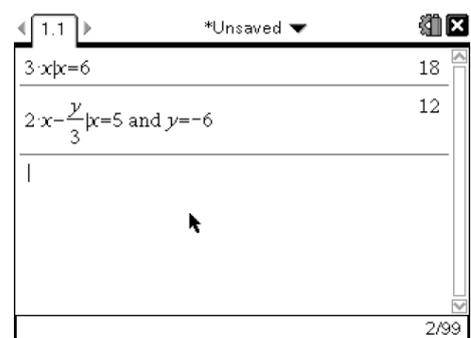
3. More complex substitutions can be performed:



4. Expressions can also be evaluated by assigning a value for a variable in the following way:

The '|' and '=' are grey keys next to the  $\text{[ctrl]}$  button. You can either type the word 'and' with the letter keys, or use the catalogue.

Notice that, if you press the  $\text{[stop/Var]}$  key, the variables  $x$  and  $y$  are not assigned as  $a$  was above.



5. A function machine can be set up in a geometry page. Watch the short video on how to make a simple function machine. (in the resource section of this page).
  
6. Try to extend the function machine so that it has two functions, or shows the inverse function as well.