

**TI-Nspire Activity:** *An Introduction to the TI-Nspire Calculator Function*

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**Activity Overview**

A basic introduction to the many features of the calculator function of the TI-Nspire

**Concepts**

A review of basic computational mathematics using handheld technology

Adding, Subtracting, multiplying, and dividing of real numbers

Approximating real number values

Square roots, absolute values, exponential functions, logarithmic functions, trigonometric functions, summations, and matrices are addressed

**Teacher Preparation**

Each student or pair of students should have their own TI-Nspire handheld to perform operations.

This activity is designed to acquaint new users of TI-Nspire technology on the many capabilities of the new handheld.

**The Classroom.**

This activity is designed to be used with single-users or pair-users. Since the intent is to show new users how to use the N-Spire, hands-on capability is a must.

**The Document**

1. Create a calculator document.  
 Press  $\text{ctrl}$ , 6:New Document, 1:Add Calculator
2. Perform the following operations to understand how the N-Spire displays data:

$1+1$	2
$3-1$	1
$3*2$	6
$\frac{4}{3}$	$\frac{4}{3}$
$\frac{1+2}{2*3}$	$\frac{7}{6}$
$\frac{1+2}{2*3}$	1.16667
$\frac{1}{2} > \frac{2}{3}$	false
$\frac{1}{2} < \frac{2}{3}$	true
$\frac{1}{2} \leq \frac{2}{3}$	true
	1

For an approximate value, press  $\text{ctrl}$   $\text{enter}$ .

The logical operation keys are located on the right side of the keypad. To obtain the  $\geq$  or  $\leq$ , type  $\text{ctrl}$ < or  $\text{ctrl}$ >.

To clear the screen, press  $\text{menu}$   $\text{1}$   $\text{5}$  for Menu, 1:Actions, 5:Clear History.

3. Some of the menu options available under the  $\text{\textcircled{menu}} \langle 2 \rangle$  or menu, 2:Numbers include:

$\frac{2}{5}$	$\frac{2}{5}$
$\frac{2}{5}$ ►Decimal	0.4
factor(99)	$3^2 \cdot 11$
lcm(12, 40)	120
gcd(12, 40)	4
remain(40, 12)	4
6:99	

Converting a fraction to a decimal and approximating a decimal to a fraction

Factoring any number into its prime factors

Finding the least common multiple of two numbers (Note: numbers must be separated by a comma)

Finding the greatest common divisor of two numbers

Finding the remainder of two numbers

4. Some of the options available under the  $\text{\textcircled{menu}} \langle 3 \rangle$  or Menu, 3:Calculations include: Numerical solve, Numerical Derivative, and Numeric Integral.

5. Some of the options available under the  $\text{\textcircled{menu}} \langle 4 \rangle$  or Menu, 4:Probability include:

12!	479001600
nPr(12, 2)	132
nCr(12, 2)	66
randInt(1, 33)	32
randInt(1, 33)	30
randInt(1, 33)	5
randInt(1, 33)	17
7:99	

Finding the factorial of a number

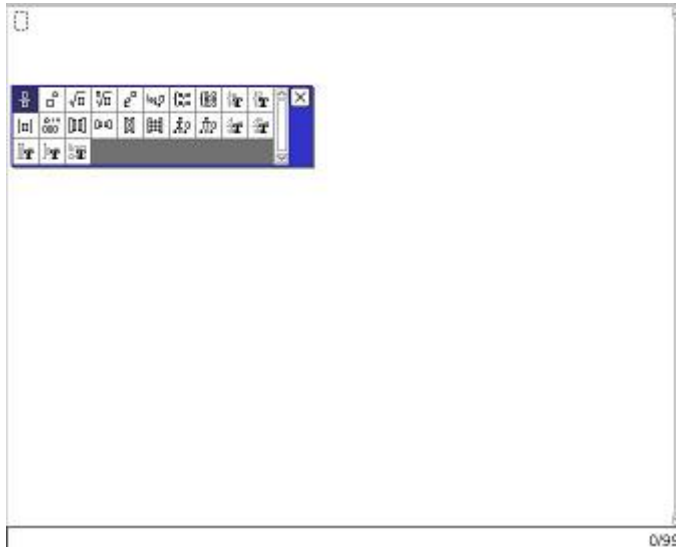
Calculating Permutations

Calculating Combinations

Generating random numbers, integers, binomials

Generating a normal, a sample, or a seed

6. Some of the options available under the  $\text{MENU}$  or Menu, 5:Statistics include: Stat Calculations, Stat Results, Mean, Median, Sample Variance, Sample Standard Deviation, All types of Regression Equations, One-Variable Statistics, Two-Variable Statistics, List Operations, Distributions, Confidence Intervals, and Stat Tests. Most of these operations are used in conjunction with the Lists and Spreadsheets option.
7. To access the square root function, there are two ways. You can either press the  $\sqrt{\square}$  keys or access the operations menu by pressing  $\text{ctrl} \sqrt{\square}$ . The operations menu has many different options including:

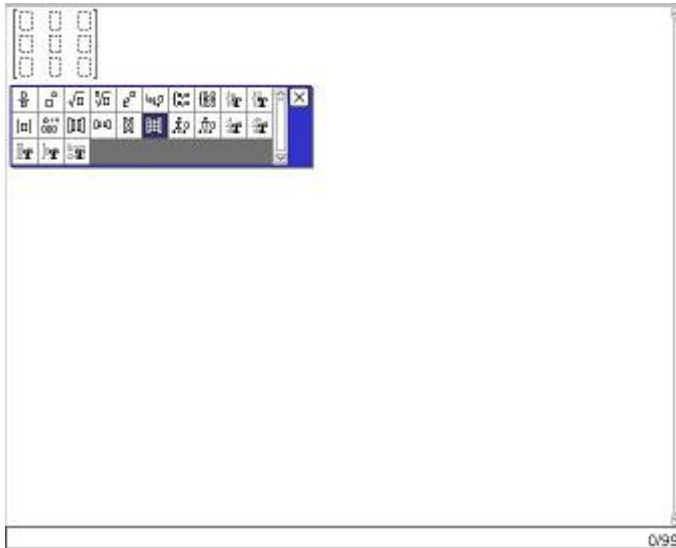


- Fraction bars
- Raising a base to a power
- Taking the square root
- Taking any root of any number
- Raising the base  $e$  to any power
- Taking the logarithm of any number using any base
- Taking the absolute value of a number
- Creating matrices

$3^2$	9
$3^2$	9
$\sqrt{25}$	5
$\sqrt{2+\sqrt{6}}$	3.8637
$\sqrt[3]{27}$	3
$\log_2(8)$	3
$ -5 $	5

Summations

8. Using the template above, as well as the  $\text{MENU}$   $\langle 6 \rangle$  or Menu, 6:Matrices and Vectors, operations may be performed on Matrices. To save a matrix to manipulate it without having to retype it, we just simply type a letter in which to store the matrix and the colon and equal keys. An example:  $\text{A} \text{:} \text{=}$ .



$\begin{bmatrix} 1 & 2 & 3 \\ 6 & 5 & 4 \\ 7 & 8 & 9 \end{bmatrix}$	$\begin{bmatrix} 1 & 2 & 3 \\ 6 & 5 & 4 \\ 7 & 8 & 9 \end{bmatrix}$	$a$	$\begin{bmatrix} 1 & 2 & 3 \\ 6 & 5 & 4 \\ 7 & 8 & 9 \end{bmatrix}$
$a \text{:}$	$\begin{bmatrix} 1 & 2 & 3 \\ 6 & 5 & 4 \\ 7 & 8 & 9 \end{bmatrix}$	$b \text{:}$	$\begin{bmatrix} -9 & -8 & -7 \\ -4 & -5 & -6 \\ -3 & -2 & -1 \end{bmatrix}$
$\begin{bmatrix} 1 & 2 & 3 \\ 6 & 5 & 4 \\ 7 & 8 & 9 \end{bmatrix}$	$\begin{bmatrix} 1 & 6 & 7 \\ 2 & 5 & 8 \\ 3 & 4 & 9 \end{bmatrix}$	$a+b$	$\begin{bmatrix} -8 & -6 & -4 \\ 2 & 0 & -2 \\ 4 & 6 & 8 \end{bmatrix}$
$\det(a)$	0	$a \cdot b$	$\begin{bmatrix} -26 & -24 & -22 \\ -86 & -81 & -76 \\ -122 & -114 & -106 \end{bmatrix}$
$\text{ref}(a)$	$\begin{bmatrix} 1 & 8 & 9 \\ 0 & 1 & 2 \\ 0 & 0 & 0 \end{bmatrix}$	$a \cdot b^{-1}$	"Error: Singular matrix"
$\text{rref}(a)$	$\begin{bmatrix} 1 & 0 & -1 \\ 0 & 1 & 2 \\ 0 & 0 & 0 \end{bmatrix}$	$\det(b)$	0
		$ $	

9. To access the Financial functions of the N-Spire, you press  $\text{MENU}$   $\langle 7 \rangle$  or Menu, 7:Finance. This menu will access the Time Value of Money (TVM) Solver. You can calculate amortization rates using the table, discover Net Present Value and Rates of Return, convert between Nominal and Effective Interest Rates, and calculate Days between Dates.

