



The Power of Calculator Software!

Zoom Math 300

Version 1.00 Upgrade Manual
for people who used Zoom Math 200

Zoom Math 300

Version 1.00 Upgrade Manual

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Upgrading to Zoom300

New Features in Zoom Math 300

Zoom Math 300 understands function notation, logarithms, summations, combinations, permutations, and factorials.

Without a Registration Key, Zoom Math 300 can do all the same things that Zoom Math 200 can do without a Registration Key. After you buy a Registration Key, Zoom Math 300 can solve many Algebra 2 problems. Zoom Math 300 can:

- Solve non-quadratic equations that are in quadratic form
- Understand function notation such as $f(x)=3x+5$
- Calculate inverse functions
- Simplify, expand, and combine logarithms
- Solve logarithmic and exponential equations
- Evaluate expressions that use summation notation
- Add geometric sequences
- Convert repeating decimals to fractions
- Simplify expressions involving combinations, permutations, and factorials
- Find the equation of a parabola with a given vertex through a given point

Zoom Math 300 can calculate the equation of a line.

Zoom Math 300 also has some new Algebra 1 features that are not in Zoom Math 200. Zoom Math 300 can:

- Show more details when using the quadratic formula
- Show the steps of checking the answers of a rational equation or a radical equation
- Calculate the equation of a line through two given points
- Calculate the equation of a line with a given slope through a given point

Installing Zoom Math 300

If you need help installing Zoom300, visit zoommath.com.

If you already installed Zoom Math 200 on your calculator, then you probably know how to install Zoom Math 300.

Zoom300 is a larger App than Zoom200, so even if you delete Zoom200 from your calculator, you might need to delete another App or two to make room for Zoom300. You will need at least 81290 ARC FREE to install Zoom300 on your calculator. If you don't know how to delete Apps from your calculator, or if you have any other problem with installation, visit zoommath.com for more help, or leave a message at 888-ZOOM-APP.

Registering Zoom Math 300

If you already bought Zoom200, you'll get an automatic discount on Zoom300.

To buy a Zoom300 Registration Key, visit zoommath.com. To buy a Registration Key you will need your calculator's zCode. You can find your calculator's zCode by running Zoom300 and pressing the **ZOOM** key.

Does your calculator already have a registered copy of Zoom Math 200? If so, then you will automatically get a discount on your Zoom Math 300 Registration Key. You'll see how much your Registration Key costs before you check out.

After you buy a Registration Key, run Zoom300 on your calculator. Go to the main Zoom Math 300 calculations screen and press **ZOOM ENTER**. You will see ten blank spaces where you can type your 10-digit Registration Key. If your registration is successful, you will see a message saying, "Now all the features of Zoom Math 300 are unlocked!"

New Features in Zoom300

Subscripts

Usually, you can type a subscript by pressing the down arrow key.

To type a subscript, press the decimal point key and then press the down arrow. Usually, you don't even need to press the decimal point key—just press the down arrow. When you're done typing a subscript, use the right arrow key to exit the subscript.

Most math problems don't use subscripts. In Zoom Math 300, you will use subscripts only when typing logarithms, combinations, or permutations.

Arithmetic and Geometric Sequences

Zoom300 can calculate the sum of the infinite geometric sequence $16+8+4+2+\dots$

To add up a long arithmetic sequence or geometric sequence, instead of typing all of the middle terms, you can type \dots by pressing the decimal point three times. Be sure to include at least the first two or three terms and the last term, and make sure the \dots is between two plus signs.

For example, to add up all the integers from 1 to 100, type $1 + 2 + \dots + 100$. To add up all the even integers from n to 100, type $n + (n + 2) + \dots + 100$. To add up all the powers of 2 from 4 to 256, type $4 + 8 + 16 + \dots + 256$.

To add up an infinite geometric sequence, just end the sequence with \dots and leave out the last term. For example, you can type $16 + 8 + 4 + 2 + \dots$ to add up an infinite geometric sequence where each number is half as much as the previous number.

Repeating Decimals

Zoom Math 300 understands repeating decimals such as $0.454545\dots$

To type a repeating decimal in Zoom Math 300, type a few digits of the repeating decimal, and then type \dots . For Zoom Math 300 to understand what you typed, you need to make sure you include the repeating digits at least twice in a row after the decimal point. For example, Zoom Math won't understand what you mean by $1.414\dots$ because the digits "14" are included once after the decimal point. Instead, type $1.41414\dots$ and Zoom Math will understand what you mean.

Logarithms

To type $\log_2 5$, press the down arrow key before you type the 2.

When you type logarithms in Zoom Math 300, you don't usually need to use parentheses. For example, if you want to calculate $\log 5 + \log 2$, you can just type $\log 5 + \log 2$, not $\log(5) + \log(2)$.

To type a logarithm with a base, press **log ▼**, and then type the base you want. For example, to type $\log_2 5$, press **log ▼ 2 5**.

In Zoom Math, just as in the calculator's home screen, lowercase e always represents the base of the natural logarithm, not a variable. So to type e , you can press **ALPHA E**. Since e^x is a commonly used function, you can also press **2nd e^x** as an alternate way to press **ALPHA E** followed by an exponent.

Combinations, Permutations, and Factorials

Instead of typing 5 nCr 3, type . ▼ 5 ALPHA C 3.

Zoom Math 300 uses the same style that most textbooks use for combinations and permutations: "Five choose three" is written as ${}_5C_3$ in Zoom Math 300. So to type five choose three, type **. ▼ 5 ALPHA C 3**.

Type permutations the same way you type combinations, but use the letter P instead of the letter C.

Type ALPHA N ALPHA . to get $n!$

To type the exclamation point of a factorial symbol, press **ALPHA** and then the decimal point key.

Summation Notation

To type Σ , press 2nd +. To type ∞ , press 2nd 8.

To type Σ , press **2nd +**. Zoom Math will fill in $i=1$ underneath the Σ , and Zoom Math will put the cursor above the Σ so you can type a number there. If you want to type ∞ above the Σ , press **2nd 8**. After you are done typing the number above the Σ , press the right arrow key to move the cursor out from above the Σ . If you want something other than $i=1$ underneath the Σ , then you can use the arrow keys to go below the Σ to change what's there.

Remember, after you move the cursor out from above the Σ , you can usually use the **X,T,θ,n** key as a shortcut to type the letter i (or whatever letter you are using as the index of summation).

For example, to type $\sum_{n=1}^{10} n$, press **2nd + 1 0 ▼ ▼ ◀ ◀ ◀ ALPHA N ▶ ▶ ▶ ▶ X,T,θ,n**.

Functions

To define a function, just type the definition the way it looks.

To define a function such as $f(x) = 3x$, just type the function definition the way it looks. After you define the function $f(x)$, you can calculate the inverse function $f^{-1}(x)$ simply by typing $f^{-1}(x)$ **ENTER**.

Zoom Math 300 only understands functions named f , g , or h . If you type $x(t) = 3t$, Zoom Math will not understand that you are trying to define a function.

After you define the function $f(x)$, you can press **GRAPH** to see the graph of the function.

Finding Equations of Lines and Parabolas

To find the equation of a line between two points, type the two points separated by a comma.

To find the equation of a line between two points, type the first point, then type a comma, and then type the second point. For example, to find the equation of the line between $(0,4)$ and $(3,5)$, type **(0,4),(3,5)**.

To find the equation of a line with a given slope through a given point, type **m =** the given slope, then a comma, and then the given point. For example, to find the equation of the line with slope 2 through the point $(3,5)$, type **m=2,(3,5)**.

To find the equation of a parabola with a given vertex through a given point, type **v =** the given vertex, then a comma, and then the given point. For example, to find the equation of the parabola with vertex $(0,0)$ through the point $(1,1)$, type **v=(0,0),(1,1)**.

After you find the equation of a line or parabola, you can press **GRAPH** to see the graph of the line or parabola.