

MATH298B

Equation

Editor

TUTORIAL

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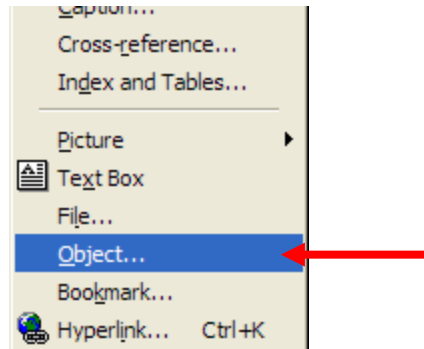
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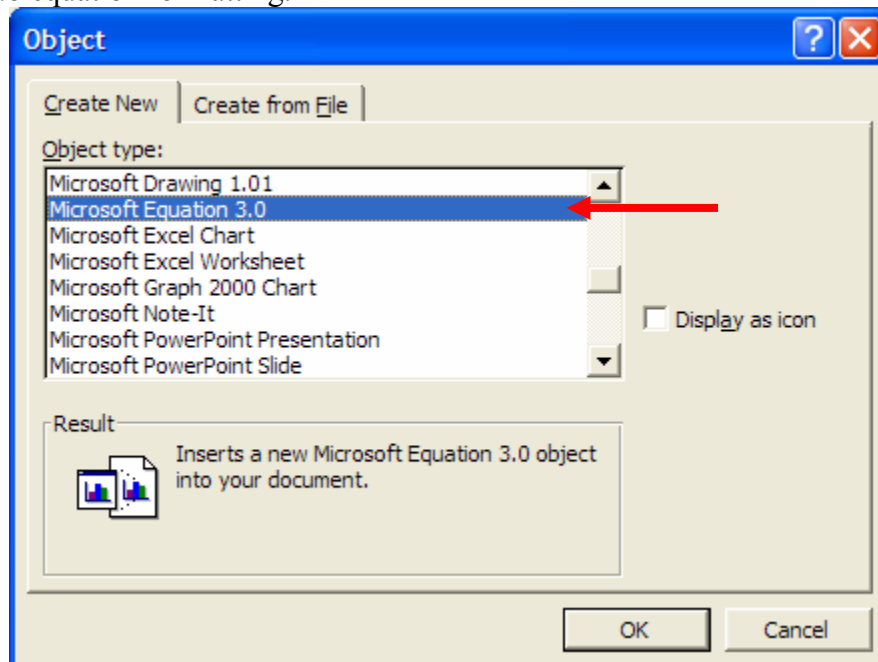
Installation Check

To check to see if it's installed:

- 1.) Open Word
- 2.) Go to the **Insert** menu and select the **Object** command.



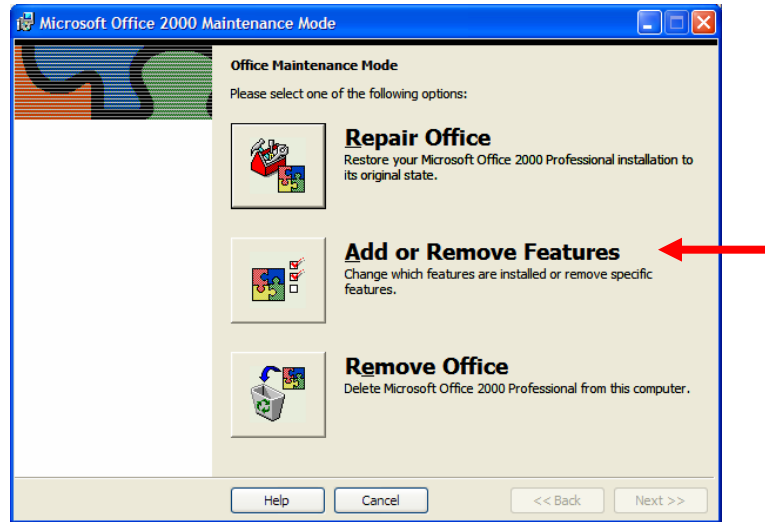
- 3.) Scroll down the object list and see if there is an entry for "**Microsoft Equation 3.0**" listed. If not, you don't have the editor installed and will have to use the installation CD to do so. If you do not have the installation CD, then you will need to use the campus computing labs to do equation formatting.



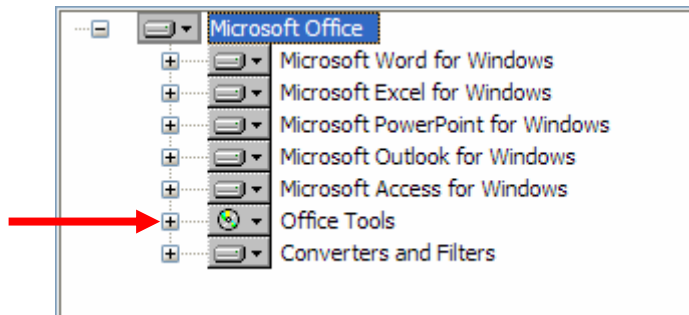
Installing the Editor

The following directions are valid for Office 2000 and may vary slightly in other versions of Office. To install the equation editor:

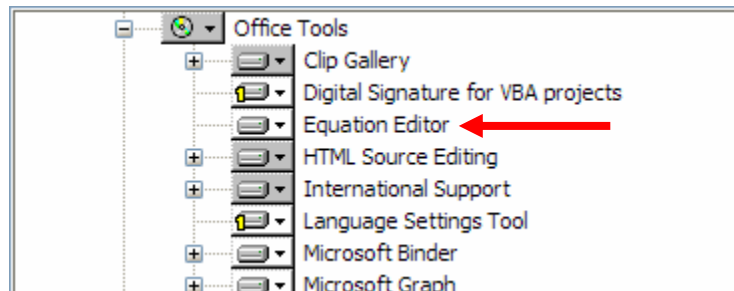
Insert the Office CD and wait for the automatic configuration screen to appear. Choose the **Add or Remove Features** option.



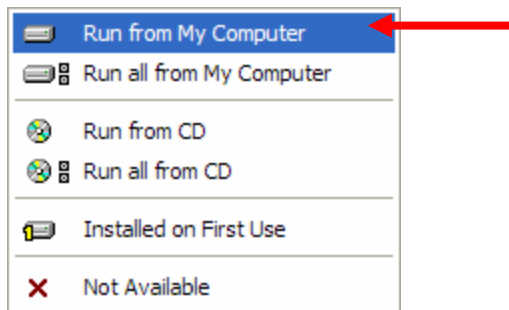
Find the **Office Tools** section and expand it by clicking on the plus sign or arrow symbol.



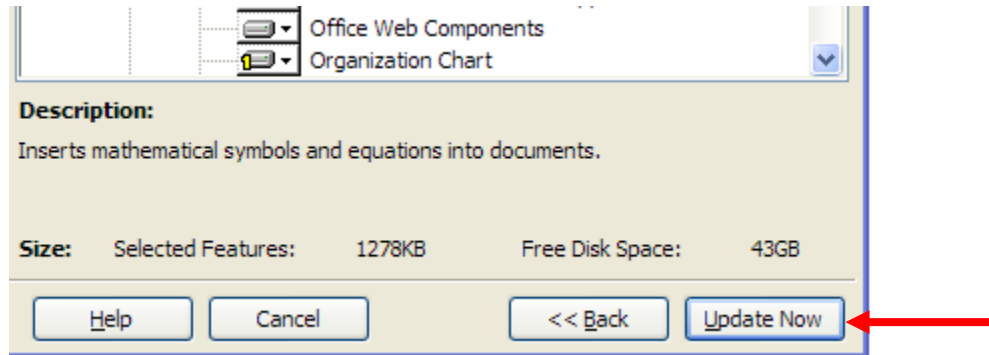
Locate the Equation editor item:



Select on the Equation Editor's drop down menu and choose **Run From My Computer** to install.



Click "Update Now" button at the bottom of the window and allow it to finish the installation.

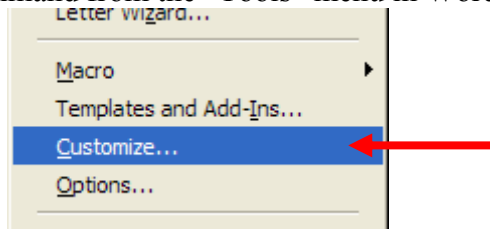


Restart your machine and the editor should be available the next time you run Word.

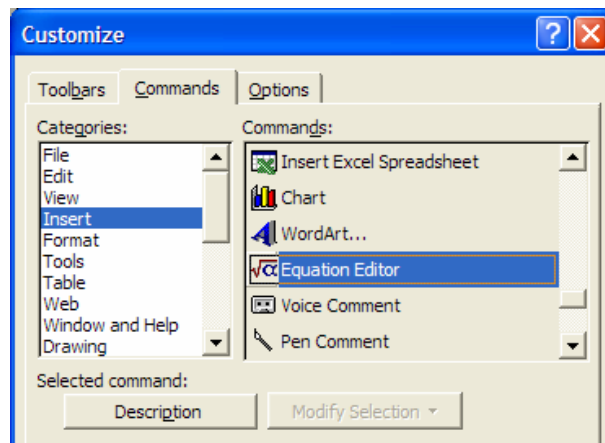
Toolbar Button Installation

Because you will be using the Equation editor often, it is handy to have the Equation Editor button available on the Word Toolbar. To do this:

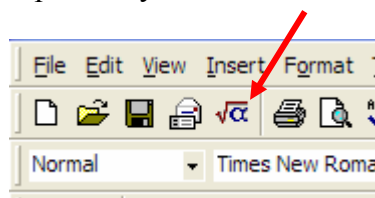
Select the “Customize” command from the “Tools” menu in Word:



Click on the “Insert” item in the left window and the “Equation Editor” in the right window:



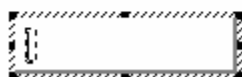
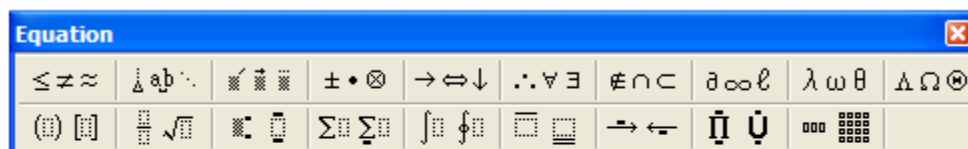
Use the mouse to point at the Equation Editor icon and then DRAG it up to the Toolbar at the top of the screen. You can put it anywhere in the toolbar:



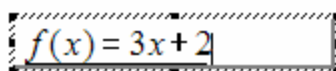
Now, any time you want to insert an equation, you simply click this button!

Using the Equation Editor

Click on the Equation Editor button and the Editor will start. You will see an empty equation appear along with the Editor Toolbar



From here you can start typing your equation. Try typing in $f(x) = 3x + 2$



Hit the Esc button on the keyboard to return to normal Word editing.

You can use the following keyboard shortcuts to build equations:

Esc	Takes you out of the equation editor and back into Word
Ctrl-F	Inserts a fraction. The Tab key moves you from numerator to denominator to out of the fraction.
Ctrl-H	Inserts an exponent. The Tab key moves you off of the exponent.
Ctrl-L	Inserts a subscript. The Tab key moves you off the subscript.
Ctrl-R	Inserts a square root symbol. The Tab key moves you out of the radical sign.
Ctrl-(Inserts a pair of parentheses that will automatically grow with its contents. The Tab key takes you out of the parentheses.
Ctrl-I	Inserts the integration symbol. The Tab key takes you from field to field.

To edit an equation you have already entered in the Editor, simply double-click on it and it will appear in the Editor mode...you can then change anything you want, just like in normal word processing situations.

Keyboard Shortcuts Example

To type the expression $P = \frac{n}{k}$ you would use the following sequence of keyboard commands after opening up an equation window (The \rightarrow symbol means “the next command is”):

P \rightarrow = \rightarrow CtrlF \rightarrow n \rightarrow Tab \rightarrow k \rightarrow Tab \rightarrow Esc

To type the expression $x^2 + 3x + \frac{1}{4} = 0$ you would use the command sequence:

x \rightarrow CtrlH \rightarrow 2 \rightarrow Tab \rightarrow + \rightarrow 3x \rightarrow + \rightarrow CtrlF \rightarrow 1 \rightarrow Tab \rightarrow 4 \rightarrow Tab \rightarrow = \rightarrow 0

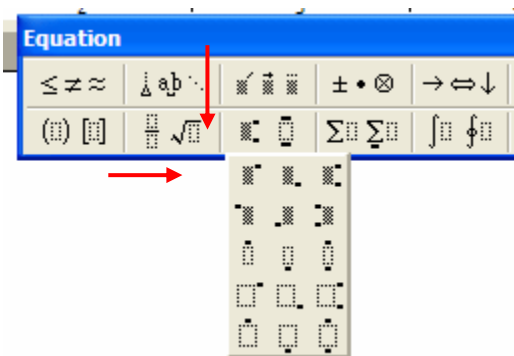
To type the expression $\frac{(x+2)^2}{5} = 7$ you could use the command sequence:

CtrlF \rightarrow Ctrl(\rightarrow x+2 \rightarrow Tab \rightarrow CtrlH \rightarrow 2 \rightarrow Tab \rightarrow Tab \rightarrow 5 \rightarrow Tab \rightarrow = \rightarrow 7

You can also use the Toolbar to insert pieces of equations:

Exponents

To insert an **Exponent or power**, click on the Exponent box and then the exponent tool:

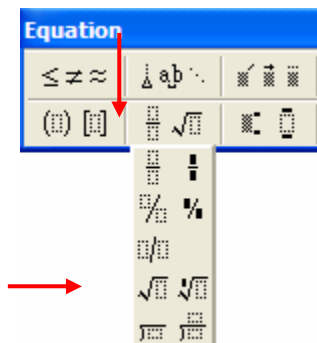


Try the following:

$$y^2 = 4$$
$$x^{1/3} - 3 = 5$$

Square Roots

To insert a **Square root symbol**, click on the Fraction and Root box and then the radical tool:

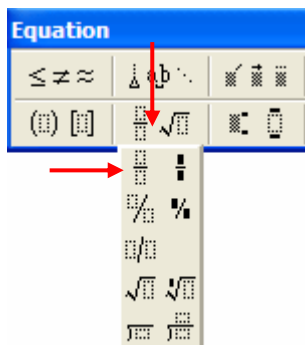


Try the following:

$$x = \sqrt{2}$$
$$y = \sqrt{x^2 + 3}$$

Fractions

To insert a **Fraction**, click on the Fraction and Root box and then the fraction tool:

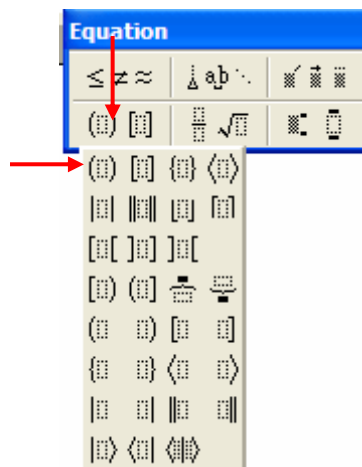


Try the following:

$$\frac{2+x}{3} = -\frac{1}{7}$$
$$z = \frac{\sqrt{x}}{y^2}$$

Complex Parentheses

To include an expression in **Parentheses**, click on the Parentheses box and then the parentheses tool:



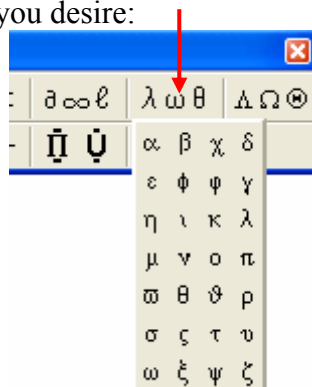
Try the following:

$$(x+2)^2$$

$$\frac{1}{3}\left(2-y\frac{1}{4}\right)$$

Greek Symbols

To insert a **Greek symbol** (such as π), click on the Greek Symbol box and then select the symbol that you desire:



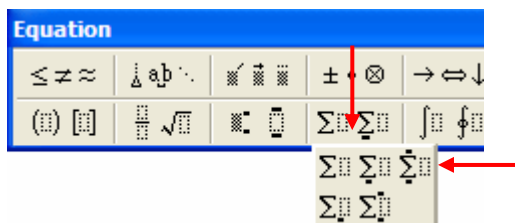
Try the following:

$$A = 2\pi$$

$$y = \theta + \lambda - \sqrt{\beta}$$

Summation Symbols

To insert the **Summation symbol**, such as $\sum_{i=1}^n x_i$, click on the Summation box and then choose the proper tool shown:

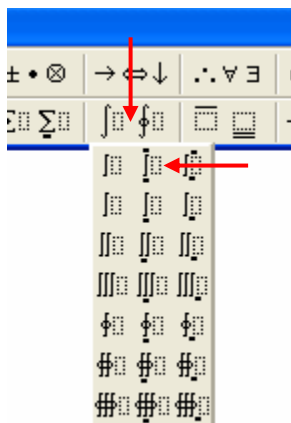


Try the following:

$$E(x) = \sum_{i=1}^{10} x^i$$
$$M = \sum_{j=2}^{200} \frac{2}{3} (x-2)^j$$

Integration

To insert the **Integration symbol**, click on the Integration box and then choose the proper tool shown.



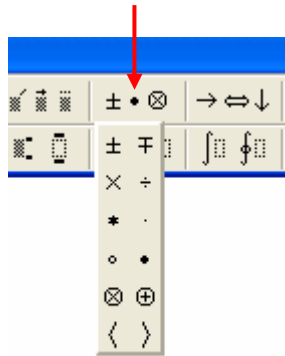
Try the following:

$$y = \int_1^{10} 3x dx$$
$$\int_a^b (4x^2 + \sqrt{x}) dx$$

(Note that the a and b are in different positions on this one.)

Basic Arithmetic Symbols

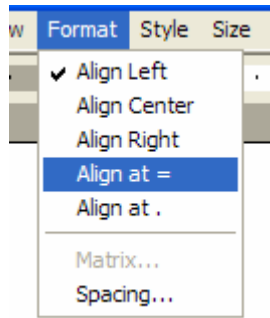
For basic **Arithmetic** symbols, use the Arithmetic box:



You can enter **several lines of mathematical equations** and work by simply hitting the Enter key. For example, you may want to show the following steps in a problem:

$$3x + 5 = 6$$
$$3x + 5 - 5 = 6 - 5$$
$$3x = 1$$
$$x = \frac{1}{3}$$

However, the proper way to present this is to **line up the equal sign**. To do this, while the equation is selected, go to the “Format Menu” and select the “Align at =” command:



After doing this, the previous equation will look like the following:

$$\begin{aligned}
 3x + 5 &= 6 \\
 3x + 5 - 5 &= 6 - 5 \\
 3x &= 1 \\
 x &= \frac{1}{3}
 \end{aligned}$$

Try the following making sure to align the equal signs:

$$\begin{aligned}
 4x + 3 &= \sqrt{x} \\
 (4x + 3)^2 &= x \\
 16x^2 + 24x + 9 &= x \\
 16x^2 + 23x + 9 &= 0
 \end{aligned}$$

Then try this:

$$\begin{aligned}
 x &= \frac{-23 \pm \sqrt{23^2 - 4(16)(9)}}{2(16)} \\
 &= \frac{-23 \pm \sqrt{529 - 576}}{32} \\
 &= \frac{-23 \pm \sqrt{-47}}{32}
 \end{aligned}$$

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