

# Creating Equations in Microsoft<sup>®</sup> Word 2007

*This document describes how to create equations  
using the Microsoft Word 2007 equation builder.*

## COPYRIGHTS

"The University of Bradford retains copyright for this material, which may not be reproduced without prior written permission".

Microsoft Word screen shot(s) reprinted by permission from Microsoft Corporation. Microsoft is a registered trademark and Windows is a trademark of Microsoft Corporation".

Learner Support Services welcomes feedback on its documentation. Please email any comments on the content of this document to:

[suggestions@bradford.ac.uk](mailto:suggestions@bradford.ac.uk)

If you need to view this or any other LSS documents in an alternative format, please see: <http://www.brad.ac.uk/lss/>.

# CONTENTS

Creating Equations in Microsoft® Word 2007.....	1
Before you Begin .....	1
Starting the Word 2007 Equation Builder .....	1
The Equation Editor Tools .....	1
Building an Equation from Scratch .....	2
Using a Preformatted Equation.....	3
Moving Around the Equation .....	3
Deleting Equations .....	3
Formatting Equation Elements .....	3
Positioning Equations .....	3
Numbering Equations .....	4
Writing Equations in Linear Format .....	5
Math AutoCorrect .....	5
Saving a Custom Equation for Future Use .....	6
Using Equation Editor 3.0.....	6



# Creating Equations in Microsoft® Word 2007

This document describes how to create mathematical expressions such as equations, summations and formulas using Word 2007's equation builder.

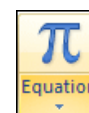
## BEFORE YOU BEGIN

Before you start creating your equations, you need to be aware of the following:

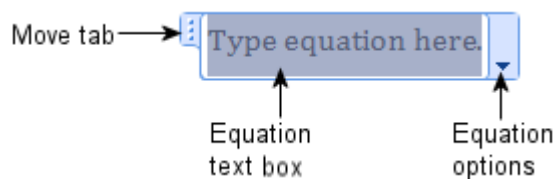
- Equations created using the new Microsoft Word 2007 equation builder are not editable in earlier versions of Word. When a file containing Word 2007 equations is converted to an earlier version of Word, any equations are turned into graphics.
- If you want your equations to be editable in an earlier version of Microsoft Word, you should use the previous version of Equation Editor (3.0) which is still available in Word 2007. For instructions on how to do this, go to the paragraph at the end of this document headed: Using Equation Editor 3.0.
- You can edit equations in Word 2007 which were produced with Equation Editor 3.0. Simply double-click the equation to open up the earlier version. However, unless you convert the document to Word 2007, you will not be able to use the new equation builder.

## STARTING THE WORD 2007 EQUATION BUILDER

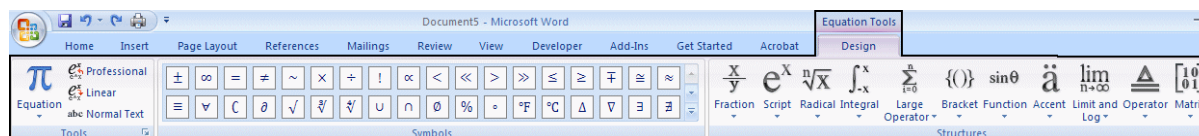
1. Place the insertion point where you want to insert the equation.
2. On the **Insert tab**, **Symbols group**, click the **Equation** icon arrow.
3. Choose either a preformatted equation from the gallery (which you can modify accordingly), or click the **Insert New Equation** option at the bottom of the list, to create an equation from scratch.



The Equation Editor box will now be displayed. (If you chose a preformatted equation, this will now appear in the box.)




## THE EQUATION EDITOR TOOLS



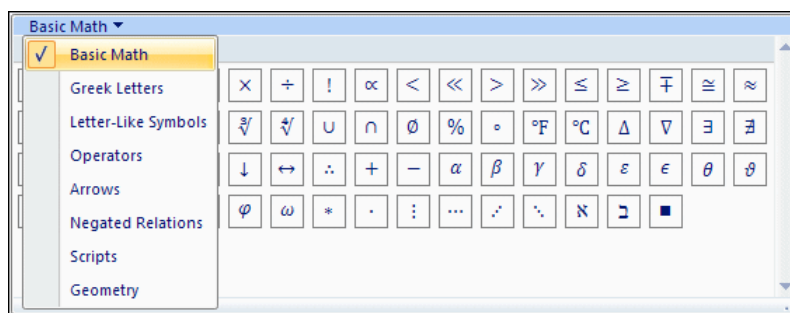
1. Observe the different groups on the Equation Tools, Design tab.
 

The **Structures** group contains templates to create Fractions, Scripts, Radicals, Integrals, Large Operators, Brackets, Functions, Accents, Limit and Operators and Matrices.
2. Click the arrow beneath each structure to see the full range.
 

The **Symbols** group contains categories of symbols, sorted by subject area.
3. To see the full range, click the **More**  button.

- Click the arrow at the top of the symbols box to expand the list.

Subject areas include: Greek Letters, Letter-Like Symbols, Operators, Arrows, Negated Relations, Scripts and Geometry.



The Tools group allows you to switch between Professional, Linear and Normal Text modes and also gives access to the gallery.

**Professional** displays the equation in two dimensional format, while **Linear** places it on one line.

Professional format: 
$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Linear format: 
$$x = (-b \pm \sqrt{(b^2 - 4ac)})/2a$$

**Normal Text** is used for inserting non-mathematical text within the equation.

## BUILDING AN EQUATION FROM SCRATCH

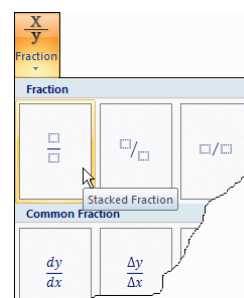
The following instructions demonstrate how to build a quadratic equation (as shown above in the Professional format example).

- If you don't have the equation box displayed, on the **Insert** tab, **Symbols** group, click on **Equation**, and choose **Insert New Equation**.



- Start typing the equation. EG to create the quadratic equation type:  
x=

- On the **Equation Tools, Design** tab, **Structures** group, click the **Fraction** arrow.



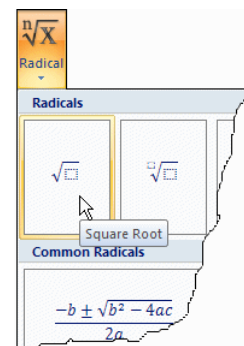
- Click the **Stacked Fraction** option. (Hover the mouse over the samples to reveal a ScreenTip.)

- Click the numerator to select it and then type:

-b

- From the **Symbols** group, click on **Plus Minus**.

- On the **Equation Tools, Design** tab, **Structures** group, click the **Radical** arrow.



- Choose the **Square Root** option.

- Click in the placeholder and type:

b

- Now select the "b", and in the **Structures** group, click

the **Script** arrow and select the **Superscript** option.

11. Select the Superscript placeholder and type: 2
12. To move the cursor below the superscript box, press the right-arrow key and then type  $-4ac$
13. Click the denominator, type:  $2a$  and then click outside the equation box and save the document.

## USING A PREFORMATTED EQUATION

If you chose one of the preformatted equations, this will now be displayed in the equation text box and you can modify it as you wish.

## MOVING AROUND THE EQUATION

To move the cursor between the placeholders, superscripts, numerators or denominators etc, either click with the mouse, or use the ARROW keys.

## DELETING EQUATIONS

To delete single elements of the equation, press the BACKSPACE key. Alternatively, select the relevant items and press DELETE.

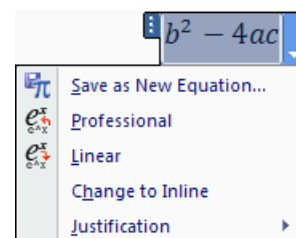
## FORMATTING EQUATION ELEMENTS

Many options are available to alter the equation layout, such as modifying the alignment and spacing of a Matrix, and changing fractions from stacked, to linear or skewed. Select the relevant item, and right-click to produce a sub-menu of suitable options.

## POSITIONING EQUATIONS

An equation can be positioned in a document in two ways, either as "Display" which positions the equation in a paragraph entirely on its own, or "In-line" whereby it can be placed within the document text. (See also: Numbering Equation.)

1. To change the position, click the equation, and then click the **Equation Options** arrow in the bottom right-hand corner.
2. On the sub-menu click on **Change to Inline**, or **Change to Display** as appropriate.



Where equations are in the Display position, their alignment within the paragraph can be changed to Left, Centre or Right by clicking on the **Justification** option. Be aware that display equations cannot have any other text on the same line, and if you attempt to add it, the equation will change to "in-line".

To place an in-line equation within text, click on the move tab and drag into position.

## NUMBERING EQUATIONS

If you wish to number equations (eg on the right or left-hand side) the best way is to insert them in a table.

1. On the **Insert tab, Tables Group** click on **Table**.
2. From the grid, select a 3 x 1 table.
3. Select the table, then on the **Table Tools, Layout tab, Table group** click on **Properties**.
4. In the **Size** section of the Table tab, select the **Preferred Width** box and change the measurement to 100%.
5. In the same window, select the Column tab and change the measurements for the first and third column to 15% and the middle one to 70%. (These measurements are optional but generally produce a satisfactory layout.)
6. To remove the table borders, select the table, click on the **Table Tools, Design tab**, and in the **Table Style Group** click on **Borders**.
7. Select **No Border**, and if the table gridlines are not displayed, click **View Gridlines**. (These are for guidance, but do not print.)

You will now have a "template" in which to enter the equation, along with the option to number it on the left, or right.

8. To ensure any text you type in the right or left cell aligns with the equation, click each in turn and on the **Table tools, Layout tab, Alignment group**, click the **Align Centre Left** button.
9. Now insert your Equation in the middle cell and add any relevant text in the left or right cell as desired.

	$f(x) = a_0 + \sum_{n=1}^{\infty} \left( a_n \cos \frac{n\pi x}{L} + b_n \sin \frac{n\pi x}{L} \right)$	Figure 1
--	---	----------

Note: If you are using your own PC, you can save this table layout for future use; however this is not possible on public cluster PCs.

10. Select the blank table and on the **Insert tab**, click on **Table**.
11. At the bottom of the list, click on **Quick Tables**, then **Save Selection to Quick Tables Gallery**.
12. In the Create New Building Block box, give your table a suitable name (eg Equation Layout Table) and then expand the Gallery list and choose **Equations**.

From now on, your ready formatted equation table will appear in the Insert, Equation gallery.



## WRITING EQUATIONS IN LINEAR FORMAT

You can choose to create equations in linear format, using the standard characters on the keyboard—this can be much quicker than using the mouse. Equation editor recognises the following characters and converts them into mathematical symbols:

^	Upper limit
_	Lower limit
/	Fraction
< >	Inequalities
<= >=	Less/greater than, or equal to
[ ] { } ( )	Brackets

The following integral equation is used as an example.

$$\int_0^1 x^2 dx = \frac{1}{3}$$

1. Press **ALT+ =** to bring up the Equation entry box.
2. Using the keyboard, type:

`\int_0^1`

and then press the space bar to create an integral object. (Typing the backslash, followed by "int" creates the integral sign; the underscore character determines the position for the lower limit; and the caret the upper limit.)

3. In the integral object, type:

`x^2`

Press the spacebar, and then type the differential:

`dx=1/3`

and press the space bar.

## MATH AUTOCORRECT

When you enter certain strings, the Math Autocorrect feature automatically converts them into the relevant symbol or groups of characters. For example, if you type:

`\alpha`

followed by a space, this produces the Greek alpha character  $\alpha$ .

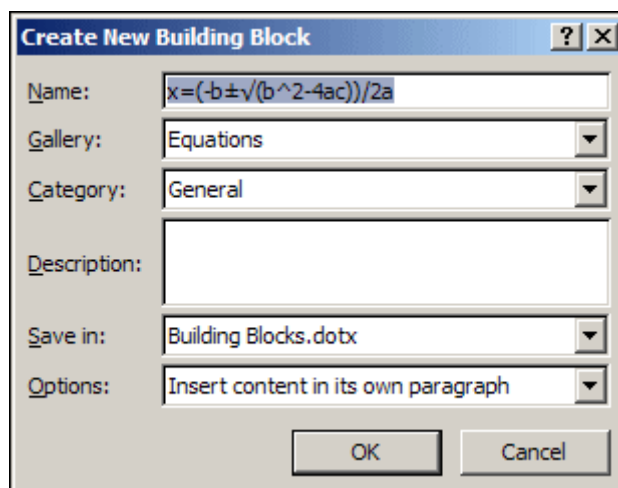
1. To see the full range of Math AutoCorrect symbols and characters, click the **Equation Tools, Design tab**, and then click the dialog box launcher in the **Tools group**.
2. In the Equation Options dialog box, click the **Math AutoCorrect** button.

## SAVING A CUSTOM EQUATION FOR FUTURE USE

If you have created your own expression, and you have your own PC, you can save it with Word's other built-in equations. (Note that this is not possible on public cluster PCs.)

1. After creating your equation, click the **Equation Options** arrow (in the bottom right-hand corner of the equation box) and select **Save as New Equation**.
2. In the Create New Building Block box, give the equation a name.
3. Click on the Gallery arrow and from the list select **Equations** and then click **OK**.

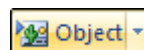
From now on your customised equation will appear in the gallery along with Word's built-in ones.



## USING EQUATION EDITOR 3.0

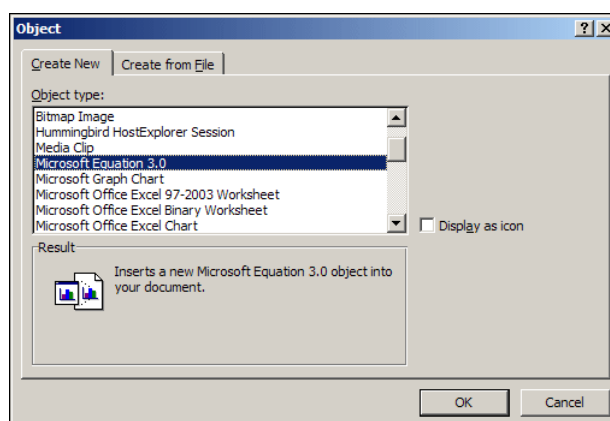
If you need to create equations using the previous version of Equation Editor (see: "Before you Begin" at the beginning of this document), follow the instructions below.

1. On the **Insert** tab, **Text Group**, click on **Object**.



2. In the Object dialog box, select the **Create New** tab.
3. Click on **Microsoft Equation 3.0**.

A small hatched box will be displayed with the cursor flashing in the top left-hand corner. The Equation Editor 3 toolbar and menu bar are also displayed ready for you to create your equation.



If you are unfamiliar with using Equation Editor 3.0, see the document:

Creating Equations in Microsoft Word 2003, at:

<http://www.brad.ac.uk/lss/documentation/equations-2003/equations-in-word-2003.pdf>.