Chapter 5
Working with Text

Text regions function as commentary in a Mathcad worksheet, explaining and annotating your computations and plots.

Mathcad supports many of the text editing and formatting features of word processors. Mathcad text can include any combination of fonts, sizes, and text styles. Text automatically wraps, breaking lines according to margins you specify. You can specify the alignment, indentation, and other properties of paragraphs in your text regions. You can define and apply text styles to maintain consistency in the appearance of your text.

This chapter includes the following sections:

Inserting text

Creating and resizing text regions. Selecting and moving text and text regions.

Text and paragraph properties

Manipulating text that is already in a region: changing text properties such as font and font size, and changing paragraph properties such as alignment and indentation.

Text styles

Working with text styles to streamline text formatting. Creating and applying new text styles.

Equations in text

Embedding equations into text regions.

Text tools

Finding and replacing characters in text and math regions. Finding and correcting spelling errors in text.

Inserting text

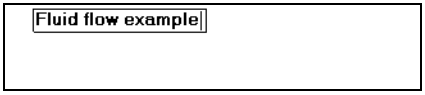
This section describes how to create text regions in Mathcad. Text regions are useful for inserting any kind of text into your worksheets and templates: comments around the equations and plots in your worksheet, blocks of explanatory text, background information, instructions for the use of the worksheet, and so on. Mathcad ignores text when it performs calculations, but you can insert working math equations into text regions as described in "Equations in text" on page 81.

Creating a text region

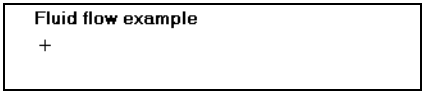
To create a text region, follow these steps. First, click in a blank space in your worksheet to position the crosshair where you want the text region to begin. Then:

- Choose **Text Region** from the **Insert** menu, or press the double-quote (**"**) key. Mathcad begins a text region. The crosshair changes into an insertion point and a text box appears.

- Now begin typing some text. Mathcad displays the text and surrounds it with a text box. As you type, the insertion point moves and the text box grows.



- When you finish typing the text, click outside the text region. The text box disappears.



Note You cannot leave a text region simply by pressing [↵]. You must leave the text region by clicking outside the region, by pressing [**Ctrl**][**Shift**][↵], or by repeatedly pressing one of the arrow keys until the cursor leaves the region.

To insert text into an existing text region:

- Click anywhere in a text region. A text box now surrounds your text. Anything you type gets inserted at the insertion point.

To delete text from an existing text region, click in the text region and:

- Press [**BkSp**] to delete the character to the left of the insertion point, or
- Press [**Delete**] to delete the character to the right of the insertion point.

To overtype text:

- Place the insertion point to the left of the first character you want to overtype.

- Press [**Insert**] to begin typing in *overtype* mode. To return to the default *insert* mode, press [**Insert**] again.

You can also overtype text by first selecting it (see below). Whatever you type next replaces your selection.

Tip To break a line or start a new line in a text region, press [↵]. Mathcad inserts a hard page break and moves the insertion point down to the next line. When you rewrap the text by changing the width of the text region, Mathcad maintains a line break at this spot in the text. To delete a hard return, click at the beginning of the next line in the text region and press [**BkSp**].

Moving the insertion point

In general, you move the insertion point around text regions by clicking with the mouse wherever you want to put the insertion point. However, you can also use the arrow keys to move the insertion point.

The arrow keys move the insertion point character by character or line by line within text. Pressing [**Ctrl**] and an arrow key moves the insertion point word by word or line by line. These and other ways of moving the insertion point are summarized below.

Key	Action
[→]	Move right one character.
[←]	Move left one character.
[↑]	Move up to the previous line.
[↓]	Move down to the next line.
[**Ctrl**][→]	Move to the end of the current word. If the insertion point is already there, move to the end of the next word.
[**Ctrl**][←]	Move to the beginning of the current word. If the insertion point is already there, move to the beginning of the previous word.
[**Ctrl**][↑]	Move to the beginning of the current line. If the insertion point is already there, move to the beginning of the previous line.
[**Ctrl**][↓]	Move to the end of the current line. If the insertion point is already there, move to the end of the next line.
[**Home**]	Move to the beginning of the current line.
[**End**]	Move to the end of the current line.

Selecting text

There are several ways to select text within a text region:

- Click in the text region so that the text box appears. Drag across the text holding the mouse button down. Mathcad highlights the selected text, including any full lines between the first and last characters you selected.
- Click in the text and press [**Shift**] and an arrow key. Mathcad highlights the text in the direction of the arrow key used.
- Click in the text and press [**Ctrl**][**Shift**] and an arrow key. If a left or right arrow is used, Mathcad highlights from the insertion point to the beginning of the current or next word. If an up or down arrow is used, Mathcad highlights text from the insertion point to the beginning or end of a line.
- Select just one word of text by double-clicking it.
- Select an entire paragraph of text within a text region by triple-clicking it.
- Select an entire text region by clicking with the right mouse button on the region and choosing **Select All** from the pop-up menu.

Once text is selected, you can delete it, copy it, check the spelling, or change its font, size, style, or color.

Tip Once you've cut or copied text to the Clipboard, you can paste it back into any text region or into an empty space to create a new text region.

Greek letters in text

To type a Greek letter in a text region, use one of these two methods:

- Click on the appropriate letter on the Greek toolbar. To see this toolbar, click  on the Math toolbar, or choose **Toolbars⇒Greek** from the **View** menu.
- Type the *Roman equivalent* of the Greek symbol and then press [**Ctrl**]**G**. For example, to enter ϕ, press **f**[**Ctrl**]**G**. See "Greek letters" on page 349 in the Appendices for a table of Greek letters and their Roman equivalents.

Tip As discussed in the section "Inserting math" in Chapter 4, typing [**Ctrl**]**G** after a letter in a math region also converts it to its Greek equivalent. In addition, [**Ctrl**]**G** converts a nonalphabetic character to its Greek symbol equivalent. For example, typing [**Shift**]**2**[**Ctrl**]**G** in a text region produces the "≅" character.

To change a text *selection* into its Greek equivalent, select the text and then:

- Choose **Text** from the **Format** menu.
- From the Font list select the Symbol font.

You can also change the font of a text selection by using the Formatting toolbar.

Changing the width of a text region

When you start typing in a text region, the region grows as you type, wrapping only when you reach the right margin or page boundary. (The location of the right margin is determined by the settings in the Page Setup dialog box, which you can modify by choosing **Page Setup** from the **File** menu.) Press [↵] whenever you want to start a new line. Often you would like to set a width for your whole text region and have lines wrap to stay within that width as you type. To do this:

- Type normally until the first line reaches the width you want.
- Type a space and press [**Ctrl**][↵].

All other lines break to stay within this width. When you add to or edit the text, Mathcad rewraps the text according to the width set by the line at the end of which you pressed [**Ctrl**][↵].

To change the width of an existing text region, do the following:

- Drag-select the text region by clicking in the worksheet outside it and dragging the mouse pointer across the region and releasing it, or click anywhere in the text region. A selection box encloses the text region.
- Move the pointer to the middle of the right edge of the text region until it hovers over the "handle" on the selection rectangle. The pointer changes to a double-headed arrow. You can now change the size of the text region the same way you change the size of any window—by dragging the mouse.

Tip You can specify that a text region occupies the full page width by clicking on the region and choosing **Properties** from the **Format** menu. Click the "Text" tab and check "Occupy Page Width." As you enter more lines of text into a full-width text region, any regions that are below are automatically pushed down in the worksheet.

Selecting and moving text regions

To select and move a single text region or group of regions, follow the same steps that you would use with math regions:

- Click on an empty spot in the worksheet, hold the mouse button down, and drag the selection rectangle across the region or regions you want to select. When you release the mouse button, dashed outlines show which regions are selected. If you have selected a single region, a selection box appears around that region.
- Now move the mouse pointer to the edge of a selected region so that its appearance changes to a hand.
- Hold down the mouse button and drag the region to the desired spot. If you've selected more than one region, the selected regions move as a group.
- Release the mouse button.

You can also cut, delete, paste, and copy text regions as you would any other regions. Select the regions, and then choose **Cut**, **Delete**, **Paste**, or **Copy** from the **Edit** menu, or click the corresponding buttons on the Standard toolbar.

Text and paragraph properties

This section describes changing various font properties and changing the alignment and indenting of *paragraphs* within a text region.

Changing text properties

To change the font, size, style, position, or color of a portion of the text within a text region, first select the text. (See "Selecting text" on page 73 for techniques of selecting text within a text region.) Then choose **Text** from the **Format** menu to access the Text Format dialog box. The Text Format dialog box also appears when you click with the right mouse button on selected text and choose **Font** from the pop-up menu.

Many of the options of the Text Format dialog box are also available via the buttons and drop-down lists on the Formatting toolbar:

When you first insert text, its properties are determined by the worksheet or template defaults for the style called "Normal." See "Text styles" on page 78 to find out about applying and modifying existing text styles and creating new ones for governing the default appearance of entire text paragraphs or regions. Any properties that you change for selected text as described here *override* the properties associated with the style for that text region.

Tip If you simply place the insertion point in text and then change the text properties through the Text Format dialog box or the Formatting toolbar, any text you now type at that insertion point will have the new properties you selected.

You can change the following properties of selected text:

Font

To change the font of the selected text, scroll through the Font list in the Text Format dialog box or Formatting toolbar and choose an available font.

Font Style

To change the style of the selected text, scroll through the Font Style list in the Text Format dialog box or click on the style buttons on the Formatting toolbar.

Font Size

To change the size of the selected text, scroll through the Size list in the Text Format dialog box or Formatting toolbar. Font sizes are in points. Note that some fonts are available in many sizes and others aren't. Remember that if you choose a bigger font, the text region you're in may grow and overlap nearby regions. Choose **Separate Regions** from the **Format** menu if necessary.

Tip You can specify that a text region automatically pushes regions down as it grows by clicking on the region and choosing **Properties** from the **Format** menu. Click the "Text" tab and select "Push Regions Down As You Type."

Effects

To make selected text take on effects such as superscripts and subscripts, click on the appropriate Effects options in the Text Format dialog box.

Tip As a shortcut for creating subscripts and superscripts in text, use the **Subscript** and **Superscript** commands on the pop-up menu that appears when you click with the right mouse button on selected text.

Color

To change the color of the selected text, scroll through the color list in the Text Format dialog box.

Changing paragraph properties

A paragraph in a text region is any stream of characters followed by a hard return, which is created when you type **[↵]**. You can assign distinct properties to each paragraph in a text region, including *alignment, indenting* for either the first or all lines in the paragraph, and *bullets* or *sequential numbering* to begin the paragraph.

When you first create a text region, its paragraph properties are determined by the worksheet or template defaults for the style called "Normal." See "Text styles" on page 78 to find out about applying and modifying existing text styles and creating new ones for governing the default appearance of entire text regions or paragraphs. Any para-

graph properties that you change as described here *override* the paragraph properties associated with the style for that text region.

You can change the properties for a paragraph within a text region by doing the following:

- Select the paragraph by clicking in it to place the insertion point, by drag-selecting it, or by triple-clicking it.
- Choose **Paragraph** from the **Format** menu, or click with the right mouse button and choose **Paragraph** from the pop-up menu. Mathcad displays the Paragraph Format dialog box.

- Change the appropriate properties in the dialog box and click "OK."

You can change the following paragraph properties:

Indent

To indent every line in the paragraph the same amount, enter numbers in the "Left" and "Right" text boxes. To indent the *first* line of the paragraph a different amount than the rest of the lines, as for a conventional or hanging indent, select "First Line" or "Hanging" from the "Special" drop-down list and enter a value below.

Bullets

To begin the paragraph with a bullet, select "Bullets" from the "Bullets" drop-down list. Select "Numbers" from the drop-down list to have Mathcad number successive paragraphs in the region automatically. Alternatively, click  or  on the Formatting toolbar.

Alignment

To align the paragraph at either the left or right edge of the text region, or to center the text within the text region, use these three alignment buttons. Alternatively, click one of the three alignment buttons on the Formatting toolbar.

Text styles

Mathcad uses *text styles* to assign default text and paragraph properties to text regions. Text styles give you an easy way to create a consistent appearance in your worksheets. Rather than choose particular text and paragraph properties for each individual region, you can apply an available text style, setting a range of text and paragraph properties at once.

Every worksheet has a default "normal" text style with a particular choice of text and paragraph properties. Depending on your worksheet and the template from which the worksheet is derived, you may have other predefined text styles to choose from, which you can apply to existing or new text regions. You can also modify existing text styles, create new ones of your own, and delete ones you no longer need.

This section describes the procedures for applying, modifying, creating, and deleting text styles. See the previous section, "Text and paragraph properties," for details on the available text and paragraph properties and for instructions on formatting selected text *within* a text region.

Applying a text style to a paragraph in a text region

When you create a text region in your worksheet, the region is tagged by default with the "Normal" style. You can, however, apply a different style to each paragraph—each stream of characters followed by a hard return—within the text region:

- Click in the text region on the paragraph where you want to change the style.
- Choose **Style** from the **Format** menu, or click with the right mouse button and choose **Style** from the pop-up menu, to see a list of the available text styles. Available text styles depend on the worksheet template used.
- Select one of the available text styles and click "Apply." The default text in your paragraph acquires the text and paragraph properties associated with that style.

Tip As an alternative to choosing **Style** from the **Format** menu, you can apply a text style to a text paragraph simply by clicking in the paragraph and choosing a style from the left-most drop-down list in the Formatting toolbar. To apply a text style to an entire text region, first select all the text in the region using one of the methods described in "Selecting text" on page 73.

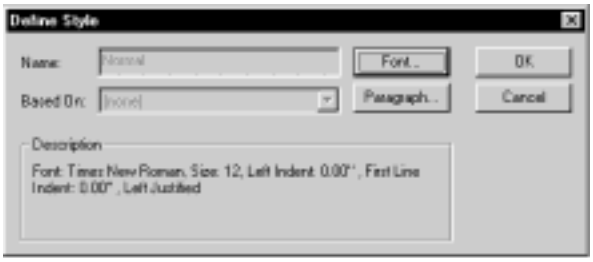
Modifying an existing text style

You can change the definition of a text style—its text and paragraph properties—at any time.

To modify a text style:

- Choose **Style** from the **Format** menu. Mathcad brings up the Text Styles dialog box showing the currently available text styles.
- Select the name of the text style you want to modify and click "Modify."

- The Define Style dialog box displays the definitions of that text style.



- Click “Font” to modify text formats such as the font, font size, font styling, special effects, and color. Click “Paragraph” to modify the indenting and alignment for paragraphs. See “Text and paragraph properties” on page 76 for details about the available text and paragraph formatting options.
- Click “OK” to save your changes.

Any new text regions to which you apply the modified text style will reflect the new definition for that text style. In addition, any text regions previously created with the text style will be modified accordingly.

Creating and deleting text styles

You can modify the list of available text styles in your worksheet by creating new ones and deleting ones you no longer use; any text style changes are saved with your worksheet. You can base a new text style on an existing text style, such that it inherits some text or paragraph properties but not others, or you can create the style entirely anew. For example, you may want to base a new “Subheading” style on an existing “Heading” style, but choose a smaller font size, keeping other text and paragraph properties the same.

Creating a text style

To create a new text style:

- Choose **Style** from the **Format** menu. Mathcad brings up the Text Styles dialog box showing the currently available text styles.
- Click “New” to bring up the Define Style dialog box.
- Enter a name for the new style in the “Name” text box. If you want to base the new style on one of the existing styles in the current worksheet or template, select a style from the “Based on” drop-down list.
- Click the “Font” button to make your choices for text formats for the new style. Click the “Paragraph” button to choose alignment and indentation options for the new style.
- Click “OK” when you have finished defining the new style.

Your new style now appears in the Text Styles dialog box and can be applied to any text region as described in “Applying a text style to a paragraph in a text region” on page 79. When you save the worksheet, the new text style is saved with it. If you want to use the new text style in your future worksheets, save your worksheet as a template as described in Chapter 7, “Worksheet Management.” You may also copy the text style

into another worksheet simply by copying and pasting a styled region into the new worksheet.

Note If you base a new text style on an existing text style, any changes you make later make to the original text style will be reflected in the new text style as well.

Deleting a text style

You may delete a text style at any time. To do so:

- Choose **Style** from the **Format** menu. Mathcad brings up the Text Styles dialog box showing the currently available text styles.
- Select one of the available text styles from the list.
- Click "Delete."

The text style is removed from the list of available text styles. However, any text regions in your worksheet whose text and paragraph properties were defined in terms of that text style will continue to display the properties of that style.

Equations in text

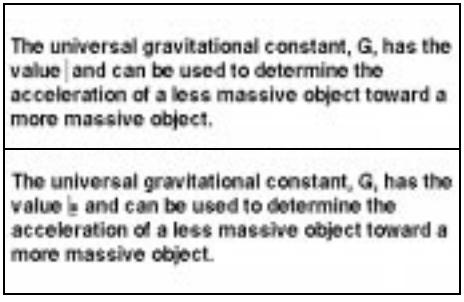
This section describes how to insert equations into your text regions. Equations inserted into text have the same properties as those in the rest of your worksheet. You can edit them using the methods described in Chapter 4, "Working with Math."

Inserting an equation into text

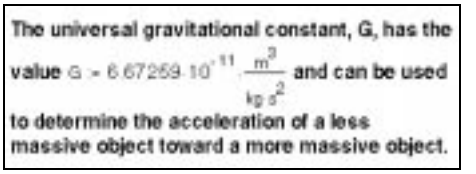
Place an equation into text either by creating a new equation inside a text region or by pasting an existing equation into a text region.

To add a new equation into a text region or a paragraph, follow these steps:

- Click in the text region or paragraph to place the insertion point where you want the equation to start.
- Choose **Math Region** from the **Insert** menu.



- Type in the equation just as you would in a math region.
- When you've finished typing in the equation, click on any text to return to the text region. Mathcad adjusts the line spacing in the text region to accommodate the embedded math region.



To paste an existing equation into a text region, follow these steps:

- Select the equation you want to paste into the text.
- Choose **Copy** from the **Edit** menu, or click  on the Standard toolbar.
- Click in the text region to place the insertion point where you want the equation to start.
- Choose **Paste** from the **Edit** menu, or click  on the Standard toolbar.

Disabling embedded equations

When you first insert an equation into text, it behaves just like an equation in a math region; it affects calculations throughout the worksheet. If you want the equation to be purely cosmetic, you can disable it so that it no longer calculates. To do so:

- Click on the equation you want to disable.
- Choose **Properties** from the **Format** menu. Click on the Calculation tab.
- Click the "Disable Evaluation" check box.
- Click "OK."

Once you have done so, the equation can neither affect nor be affected by other equations in the worksheet. To turn it back on, remove the check next to "Disable Evaluation" in the Properties dialog box.

For a more general discussion of disabling and locking equations, see "Disabling equations" on page 144.

Text tools

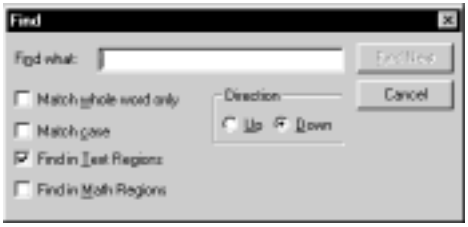
Mathcad has tools for finding and replacing text as well as checking the spelling of text.

Find and Replace

Mathcad's **Find** and **Replace** commands on the Edit menu are capable of working in both text and math regions. By default, however, Mathcad finds and replaces text in text regions only.

Searching for text

To find a sequence of characters:



- Choose **Find** from the **Edit** menu. Mathcad brings up the Find dialog box.
- Enter the sequence of characters you want to find.
- Click "Find Next" to find the occurrence of the character sequence immediately after the current insertion point location. Use the available options in the dialog box to search upward or downward in the worksheet, to match whole words only, to match the case exactly of the characters you entered, and to specify whether Mathcad should search in text or math regions or both.

On-line Help The Help topic "Characters You Can Find and Replace" details the characters you can find in math and text regions, including Greek symbols. Many special characters, including punctuation and spaces, can be located only in text or in math strings.

Replacing characters

To search and replace text:

- Choose **Replace** from the **Edit** menu to bring up the Replace dialog box.
- Enter the string you want to find (the target string) in the "Find what" box.
- Enter the string you want to replace it with in the "Replace with" box. Check the appropriate boxes to match whole words only, to match the case exactly of the characters you entered, and to specify whether Mathcad should search in text or math regions or both.

You now have the following options:

- Click "Find Next" to find and select the next instance of your target string.
- Click "Replace" to replace the currently selected instance of the string.
- Click "Replace All" to replace all instances of the string.

Spell-checking

After creating text, you can have Mathcad search it for misspelled words and suggest replacements. You can also add words that you commonly use to your personal dictionary.

Note Mathcad spell-checks text regions only, not math or graphics regions.

To begin spell-checking, specify the portion of the worksheet to spell-check. There are two ways to do this:

- Click at the beginning of wherever you want to spell-check. Mathcad spell-checks starting from this point and continues to the end of the worksheet. You can then either continue the spell-check from the beginning of the worksheet or quit spell-checking.
- Alternatively, select the text you want to spell-check.

Once you've defined a range over which to check spelling:

- Choose **Check Spelling** from the **Edit** menu, or click  on the Standard toolbar.
- When Mathcad finds a misspelled word, it opens the Check Spelling dialog box. The misspelled word is shown along with a suggested replacement, or a list of possible replacements. If Mathcad has no immediate suggestions, it shows only the misspelled word.

Tip To determine whether a word is misspelled, Mathcad compares it with the words in two dictionaries: a general dictionary of common English words supplemented by mathematical terms and a personal dictionary. If there are certain correctly spelled words throughout your worksheet which Mathcad nevertheless shows as being misspelled, you may want to add them to your personal dictionary.

After the Check Spelling dialog box appears, you have several options:

- To change the word to the suggested replacement, or to another word you select from the list of possible replacements, click "Change."
- Click "Suggest" to see additional but less likely replacements. If Mathcad can offer no additional suggestions, "Suggest" is grayed.
- To change the word to one not listed, type the replacement into the "Change to" box and click "Change."
- To leave the word as is, click "Ignore" or "Add." If you click "Ignore," Mathcad leaves the word alone, continues spell-checking, and ignores all future occurrences of the word. If you click "Add," the word is added to your personal dictionary.