ChE 263

Handout for Mathcad Class #1 – Mathcad Basics

1. Common Keystrokes

Keystroke	Description
+	Add
-	Subtract
*	Multiply
/	Divide
|	Absolute Value $\|\blacksquare\|$
\	Square root $\sqrt{\blacksquare}$
<Ctrl>\	Nth root $\sqrt[\blacksquare]{\blacksquare}$
<Space Bar>	Enlarges the selected part of an expression. Space within a variable name turns it into text
<Ctrl><Enter>	Addition with a line break (To place long expression on two lines)
<Insert>	Toggles the insertion point between the front and back of the expression.
"	Creates a text box.
.	**Text** subscript as part of a variable name.
[	**Vector/Matrix** subscript
<Ctrl>g	Changes the preceding character to the corresponding Greek letter.

2. Practice
    a. *Evaluate the following when x = 11 and y = -3.*
    $$xy, \ x/y, \ x^{y}, \ x^{|y|}, \sqrt{x} \, , \ \sqrt[y]{x} \, , \ (x+3)^{-y}$$
    b. Edit $(x+3)^{-y}$ making it $(x-3)^{-y}$
3. Symbolically Evaluating Expressions
    a. Two methods are available to perform symbolic manipulations
        i. **Symbolic** toolbar
        ii. **Symbolics** pull-down menu
    b. *Difference is re-calculation*
        i. The toolbar honors previous calculations and variable assignments and is automatically recalculated when sheet is.
        ii. The pull-down menu does not honor previous calculations and the results are not recalculated when the sheet is.
    c. Practice
        i. Using the *Symbolic toolbar*, perform the following manipulations.
            1. **Simplify** $\dfrac{x^2 - 3x - 4}{x - 4} + 2x - 5$
            2. **Expand** $(x + y)^2$
            3. **Factor** $x^2 + 8x + 16$
        ii. Using the *Symbolics Pull-down Menu*, repeat the manipulations given above in 3.c.i.