EG413 Computer Aided Engineering

Tutorial 1: Mathcad, step-by-step

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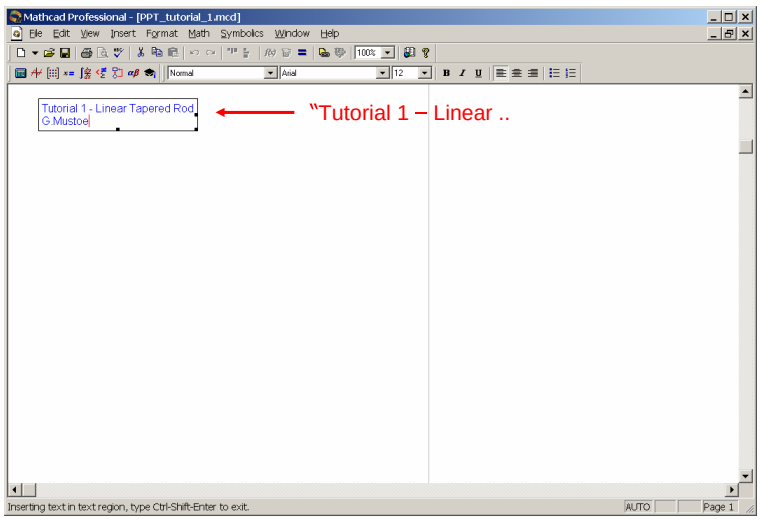
Purpose and Setup

- Demonstrate how to use MATHCAD basics in Tutorial 1
- Note, these instructions only explain the major MATHCAD commands used, not a complete description of every line of MATHCAD commands for Tutorial 1
- While performing the step-by-step MATHCAD solution have a copy of Tutorial 1 equations at hand

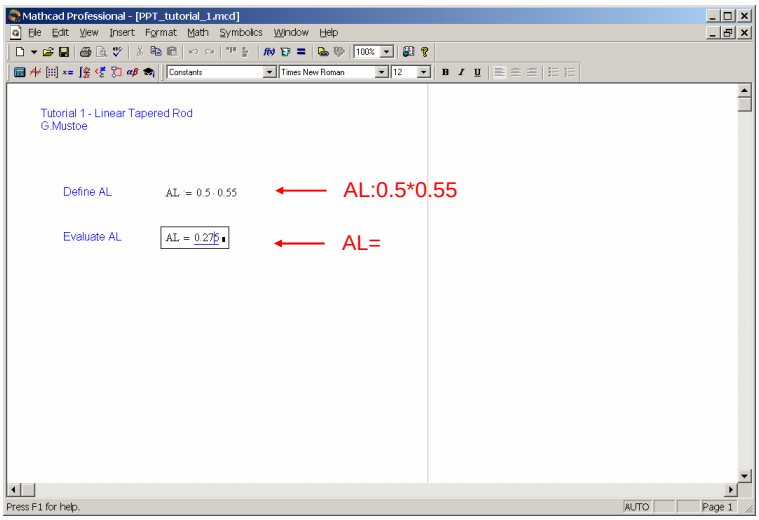
Mathcad Commands required for Tutorial 1

- Use Text mode
- Use Equation mode and <space>
- Copy and paste a picture
- Define a variable
- Evaluate a variable
- Define a function
- Evaluate a function
- Create a range variable (integers)
- Define a vector using an array subscript
- Make an x-y plot

Mathcad – Text mode

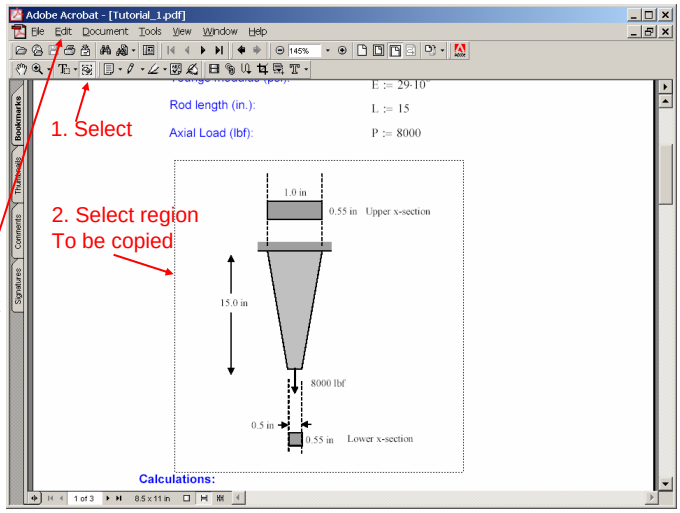


Mathcad – Equation mode



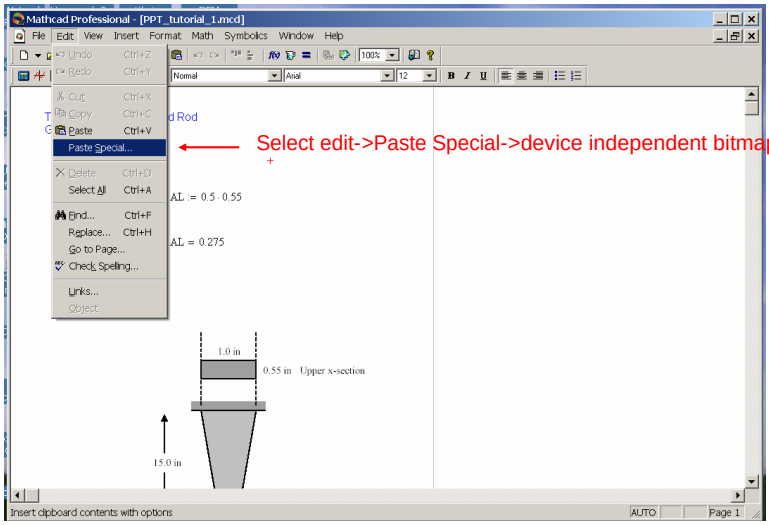
IVLS04 5

Mathcad – Copy and paste and picture



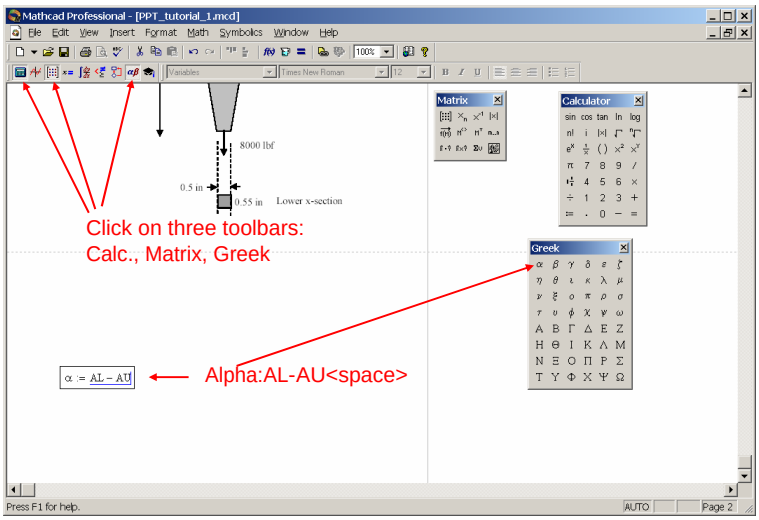
IVLS04 6

Mathcad – Paste picture into MCAD sheet



Select edit->Paste Special->device independent bitmap

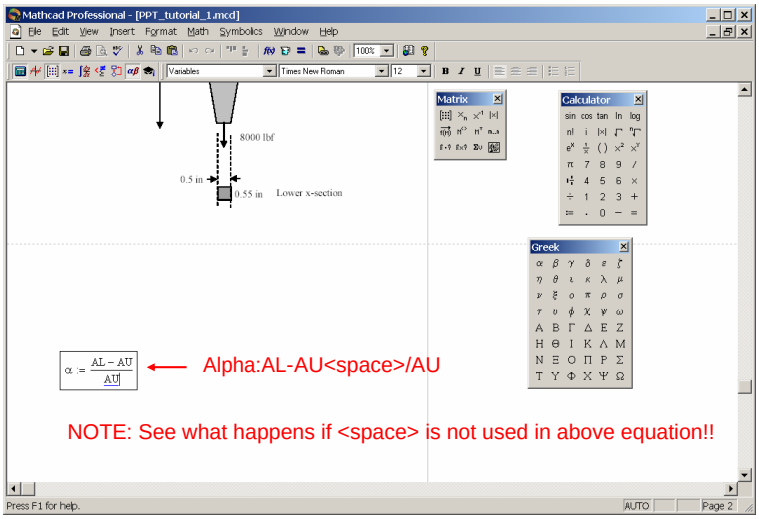
Mathcad – Toolbars and use of <space bar>



Click on three toolbars:
Calc., Matrix, Greek

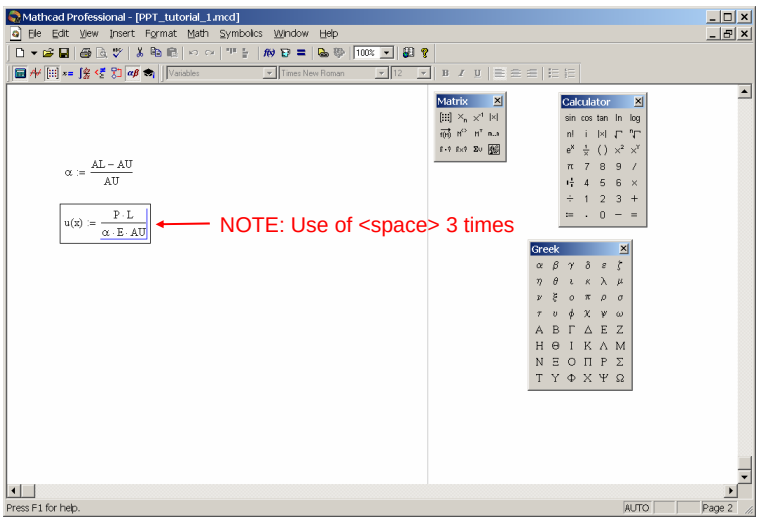
Alpha:AL-AU<space>

Mathcad – Use of <space bar>



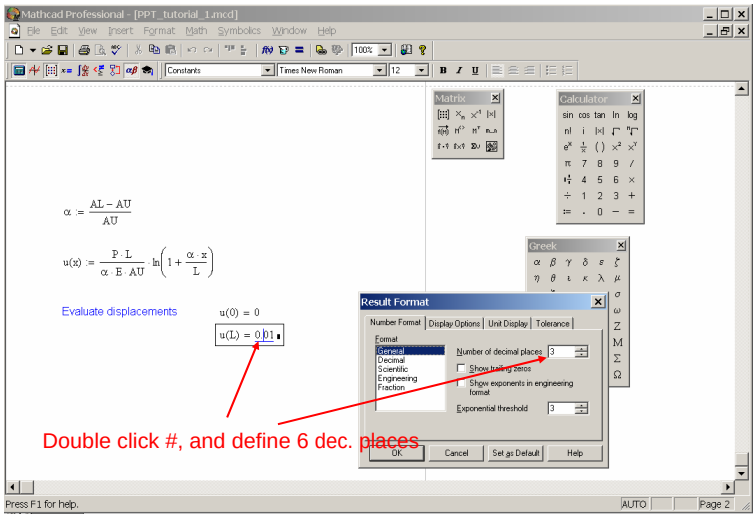
IVI S04 9

Mathcad – Function definition



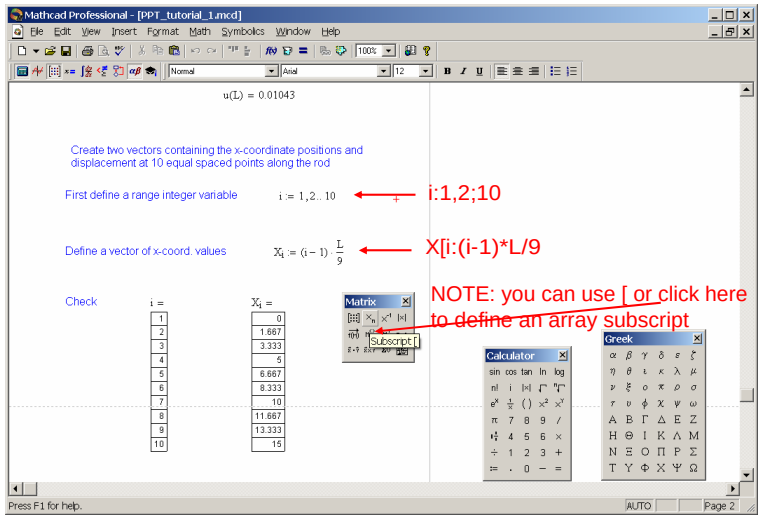
IVI S04 10

Mathcad – Function evaluation and display sig figs



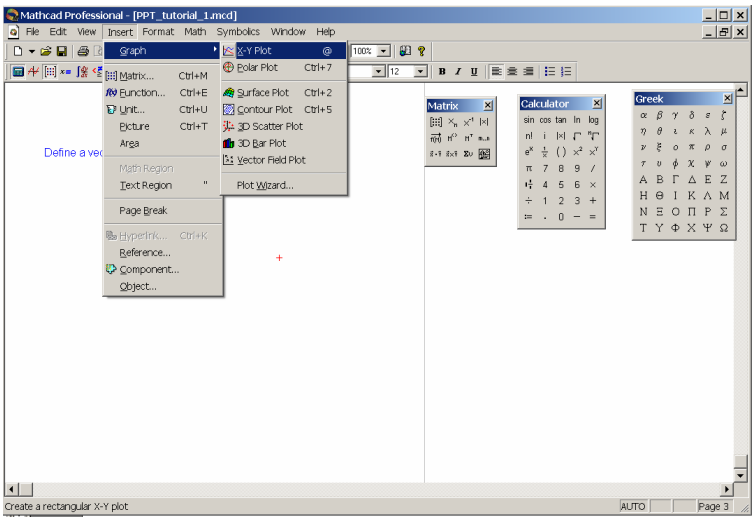
JVL S04 11

Mathcad – range variables and vectors

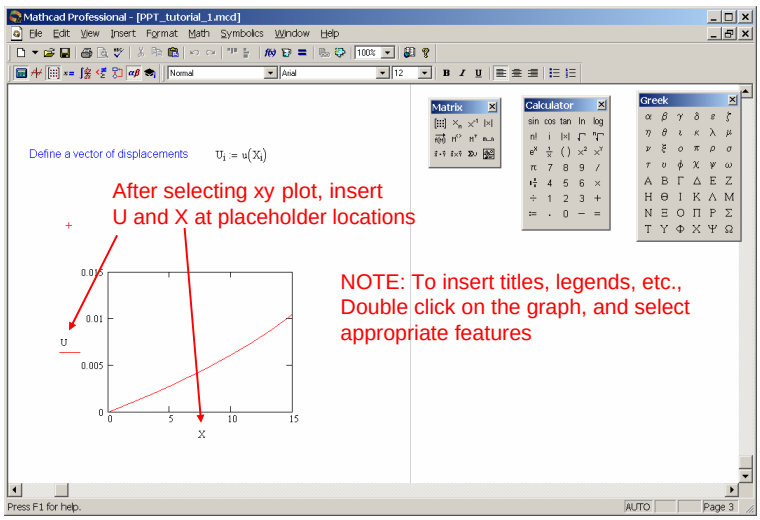


JVL S04 12

Mathcad - xy plot



Mathcad - xy plot (continued)



Concept Questions

1. What are MathCAD's two main modes?
2. How do you define a function in MathCAD?
3. How do you debug a MathCAD spreadsheet?
4. In what order are values calculated in MATHCAD?
5. What is a range variable and why are they used? Give an example.
6. Explain the difference between the two different types of subscript variables in MathCAD and how you use each.