

- Today:
 - HW 5 due. Quiz 3 (Final C++ quiz).
 - Start MATLAB (NUnet->Applications->Statistical and Computational packages->MATLAB Release 13->MATLAB 6.5)
 - Continue “Intro to MATLAB”:
 1. MATLAB 3-environments
 2. Files: Diary files & m-files
- DUE next class (W/Th):
 - Ch. 2 problems (2, 3, & 5)
 - HW 6 Pre-Lab. Complete Lab in class.
- Due next Monday (03.22):
 - HW 6
 - Quiz 4: covers lectures 10-11, Ch. 2 problems

Matlab - 3 Environments

1. **Command Window** – for working interactively
2. **Plot/figure Window** – for graphing
3. **Editor/Debugger Window** – for creating or saving a script (m-file). Two ways:
 - Click → File → New → M-file to see the edit window (text editor like NotePad)
 - Type **edit** in the Command Window

(Close the edit window when done.)

Diary files

```
% Let's try a diary file
clc
cd a:
diary test1
time=0:1:10
temp1=0:2:20
temp2=2*temp1
whos
plot (time, temp1, time, temp2)
diary off
```

Now look at your diary ... click file, click open, file type=all

Note: a diary file is not an m-file

M-files

Create an m-file:

Click file, new, m-file

Put 1 command on each line ... but put ; to suppress displaying each result

```
time=0:1:10;
```

```
temp1=0:2:20;
```

```
temp2=2*temp1;
```

```
plot (time, temp1, time, temp2);
```

Now click file, save as ... test1.m (no spaces in name!)

Click debug, click run

Results should be displayed

Math & Trig functions – see lists p.59

- **functions may have arguments**
 - **pi** has no arguments
 - **sin(angle)** has 1 argument
 - **mod(x,y)** has 2 arguments
 - calculates remainder of x/y... ex: **mod(25,4)** is 1
- **functions are lower case**
- **ok to “nest functions”**
 - round (sqrt(143))**
- **trig functions use radians**

Data Analysis functions– see list p.61

- **max (x)** returns largest value in a row vector
- **min (x)** returns smallest value in a row vector
- **mean (x)** calculates average of a row vector
- **sum (x)** computes sum of elements in a vector
- **sort (x)** sorts vector into ascending order

- **More next time...**

HW 6 Prelab due in next class (W/Th)

- Remember to bring diskettes
- Read both of the handouts (Part I in particular) & complete the Prelab worksheet

For Prelab – some helpful info

1. **Hint:** for the command to convert an angle to radians from degrees... go to google and type “converting between degrees and radians”. You should be able to quickly find a website that gives this formula.
2. Initial velocity has an x component and y component
3. Solving a quadratic equation:
$$.5gt^2 + V_{oy}t - y = 0$$
$$At^2 + Bt - y = 0$$

=> 2 solutions

Due Monday 03.22.04

Include in folder you turn in:

1. **Diary file** (print out & save on diskette = intro_ __.dia)
2. **3 plots** (produced in lab)
3. **m-file** (print out & save on diskette = intro_ __.m)
 - Easiest to create the m-file using the diary file
 - Verify that running m-file gets same results as you did in lab in the command window
4. **Change m-file** (print out & save on diskette = intro_ __.2.m)
to match homework -> **initial velocity= 200, initial angle=50**
 - corresponding new plot(s)
5. **Cover page, list of contents, diskette**

If time, start prelab and/or HW 6 today in class...Full lab on W/Th