

LECTURE 1: Introduction

- **%The command window can be used for executing commands, i.e.:**

$$2*(4+3) = 14$$

- **%Notice the effect of a semicolon at the end of a command line:**

$$2*(4+3);$$

- **%We can also assign variables:**

$$a=5; b=6;$$

- **%Then use them in an equation:**

$$a+b = 11$$

$$a-b = -1$$

$$a*b = 30$$

$$a/b = 0.8333$$

$$a\backslash b = 1.2000$$

$$a^b = 15625$$

%MATLAB ops follow the same precedence as mathematical order of operations, i.e:

$$7+8/2 = 11$$

$$(7+8)/2 = 7.5000$$

$$-1^2 = -1$$

$$(-1)^2 = 1$$

$$5^3/2 = 62.5000$$

$$5^{(3/2)} = 11.1803$$

%Display of answers can be changed using format statements:

$$\text{format short}; 5^{(3/2)} = 11.1803$$

$$\text{format long}; 5^{(3/2)} = 11.18033988749895$$

$$\text{format short e}; 5^{(3/2)} = 1.1180e+001$$

$$\text{format long e}; 5^{(3/2)} = 1.118033988749895e+001$$

$$\text{format short g}; 5^{(3/2)} = 11.18$$

$$\text{format long g}; 5^{(3/2)} = 11.1803398874989$$

$$\text{format bank}; 5^{(3/2)} = 11.18$$

%Mathlab includes many built-in functions. Most are obvious. Lets look at some rounding functions:

```
round(17/5) = 3.00
ceil(17/5) = 4.00
round(18/5) = 4.00
floor(18/5) = 3.00
rem(18,5) = 3.00
sign(-5) = -1.00
sign(5) = 1.00
```

- **%For summary of commands and functions, see appendix. For help on a function, i.e. type:**

```
help rem
```

REM Remainder after division.

REM(x,y) is $x - n.*y$ where $n = \text{fix}(x./y)$ if $y \neq 0$. If y is not an integer and the quotient $x./y$ is within roundoff error of an integer, then n is that integer. By convention, REM(x,0) is NaN. The input x and y must be real arrays of the same size, or real scalars.

REM(x,y) has the same sign as x while MOD(x,y) has the same sign as y. REM(x,y) and MOD(x,y) are equal if x and y have the same sign, but differ by y if x and y have different signs.

See also MOD.

- **%Note: MATLAB is a great number cruncher and does a great job plotting.**
- **%MATLAB is not a great symbolic manipulator. For this use MAPLE or your TI.**