

MATH 3341: Introduction to Scientific Computing Lab

Libao Jin

University of Wyoming

September 4, 2019

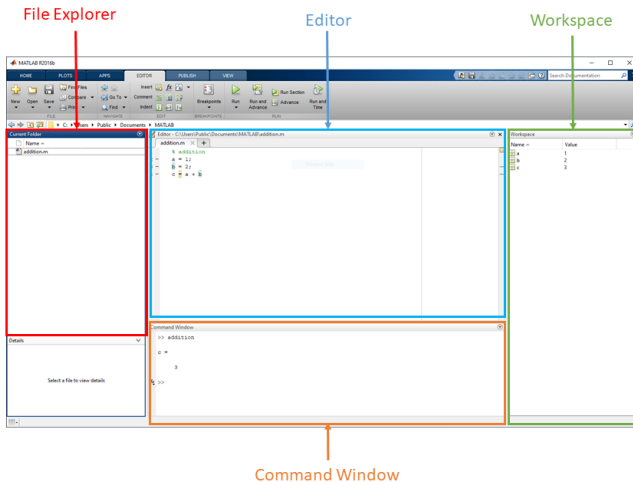


The background of the slide features a large, faint watermark of the University of Wyoming seal. The seal is circular with a rope-like border. Inside the border, the words "UNIVERSITY OF WYOMING" are written in an arc at the top, and "1886" is at the bottom. In the center of the seal is an open book with a quill pen resting on it.

Lab 01: Introduction to MATLAB



MATLAB Interface

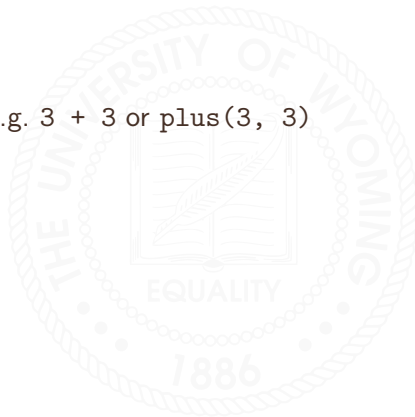


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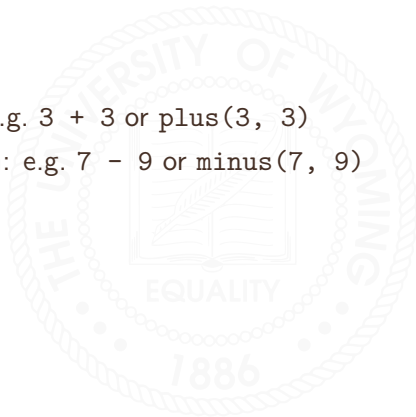
Basic Math Operations



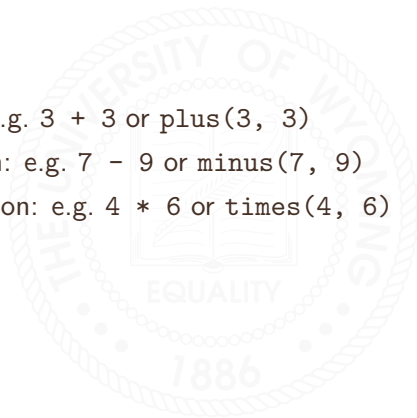
- Addition: e.g. $3 + 3$ or `plus(3, 3)`



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- Multiplication: e.g. $4 * 6$ or `times(4, 6)`

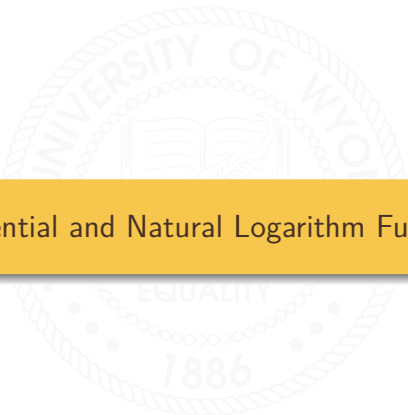


- Addition: e.g. $3 + 3$ or `plus(3, 3)`
- Subtraction: e.g. $7 - 9$ or `minus(7, 9)`
- Multiplication: e.g. $4 * 6$ or `times(4, 6)`
- Division: e.g. $6 / 3$ or `rdivide(6, 3)`



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- Multiplication: e.g. $4 * 6$ or `times(4, 6)`
- Division: e.g. $6 / 3$ or `rdivide(6, 3)`
- Exponentiation: e.g. $2 ^ 3$ or `power(2, 3)`





Exponential and Natural Logarithm Functions



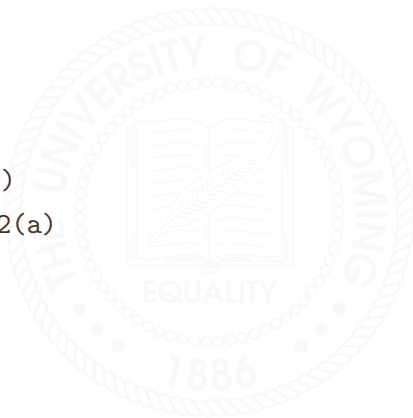
- e^x : `exp(x)`



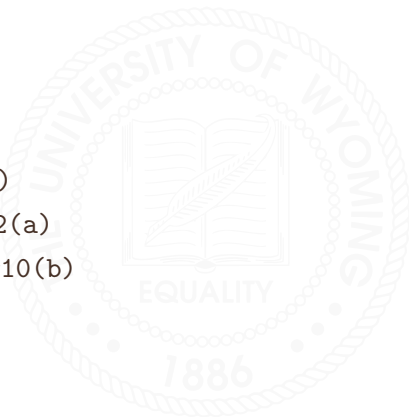
- e^x : `exp(x)`
- $\ln y$: `log(y)`



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- $\log_2 a$: `log2(a)`



- e^x : `exp(x)`
- $\ln y$: `log(y)`
- $\log_2 a$: `log2(a)`
- $\log_{10} b$: `log10(b)`

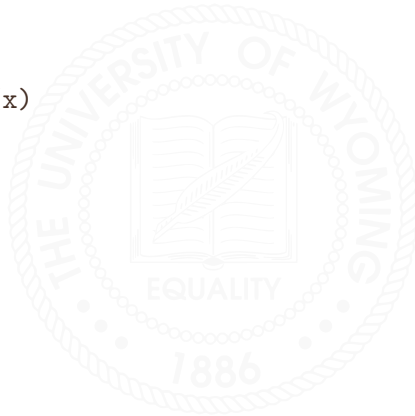




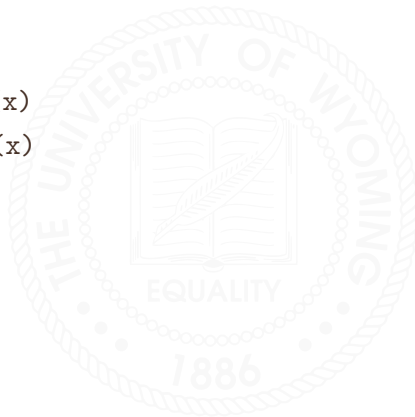
Trigonometric Functions



- $\sin x$: `sin(x)`



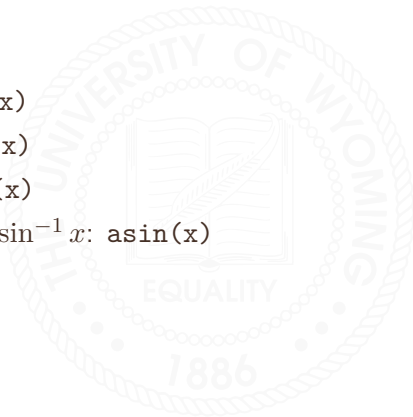
- $\sin x$: `sin(x)`
- $\cos x$: `cos(x)`



- $\sin x$: `sin(x)`
- $\cos x$: `cos(x)`
- $\tan x$: `tan(x)`



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- $\arcsin x$ or $\sin^{-1} x$: `asin(x)`



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- $\arctan x$ or $\tan^{-1} x$: `atan(x)`



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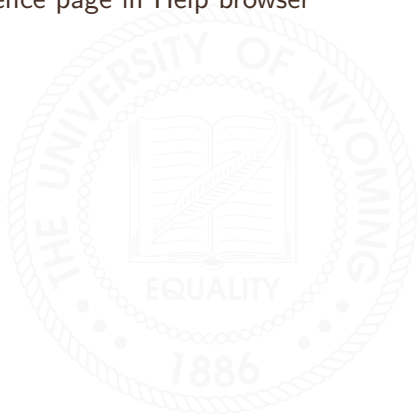
Functions Commonly Used



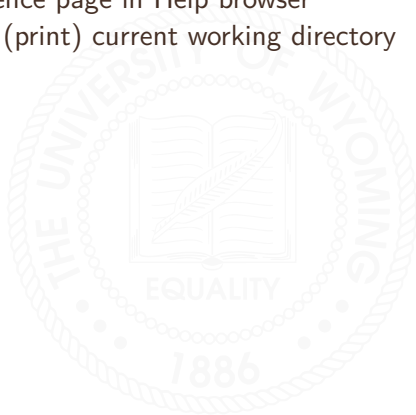
- `help`: Display help text in Command Window



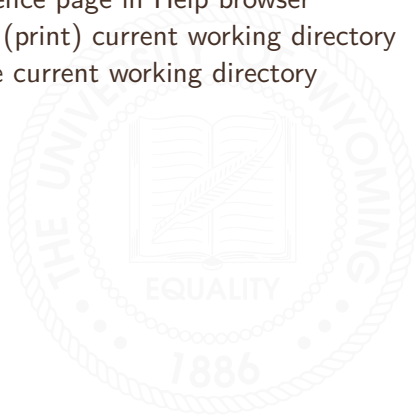
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- `doc`: Reference page in Help browser



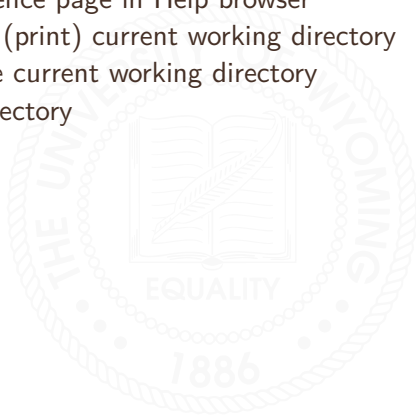
- `help`: Display help text in Command Window
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- `pwd`: Show (print) current working directory



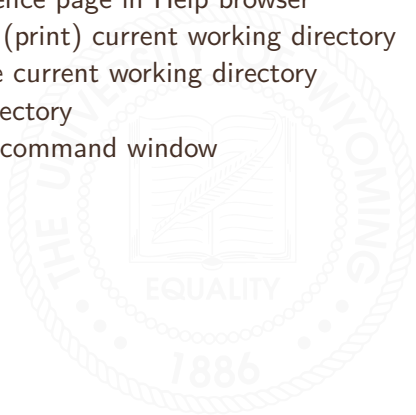
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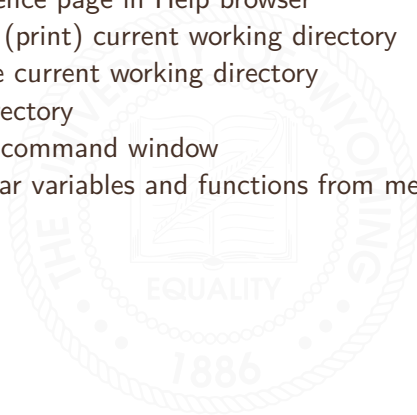
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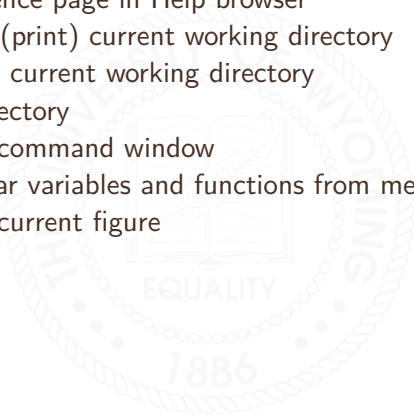
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- `clc`: Clear command window



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- `diary`: Save text of MATLAB session



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- `diary`: Save text of MATLAB session
- `realmin`: Smallest positive normalized floating point number



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- `realmax`: Largest finite floating point number



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- `realmin`: Smallest positive normalized floating point number
- `realmax`: Largest finite floating point number
- `intmin`: Smallest integer value



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- `intmin`: Smallest integer value
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- `eps`: Spacing of floating point numbers



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- `intmax`: Largest positive integer value
- `eps`: Spacing of floating point numbers
- `class`: Return class name of object

