`pi`	π
`i`	$\sqrt{-1}$
`x = 3`	define variable $\mathbf{x}$ to be 3
`x = [1 2 3]`	set $\mathbf{x}$ to the 1×3 row vector $(1, 2, 3)$
`x = [1; 2; 3]`	set $\mathbf{x}$ to the 3×1 vector $(1, 2, 3)$
`A = [1 2; 3 4]`	set A to the 2×2 matrix $\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$
`x(2) = 7`	change x_2 to 7
`A(2,1) = 0`	change A_{21} to 0
`3*x`	multiply each element of $\mathbf{x}$ by 3
`x+3`	add 3 to each element of $\mathbf{x}$
`x+y`	add $\mathbf{x}$ and $\mathbf{y}$ element by element
`A*x`	product of matrix A and column vector $\mathbf{x}$
`A*B`	product of two matrices A and B
`x.*y`	element-wise product of vectors $\mathbf{x}$ and $\mathbf{y}$
`A^3`	for a square matrix A, raise to third power
`cos(A)`	cosine of every element of A
`sin(A)`	sine of every element of A
`x'`	transpose of vector $\mathbf{x}$
`A'`	transpose of vector A
`A(2:12,4)`	the submatrix of A consisting of the second to twelfth rows of the fourth column
`A(2:12,4:5)`	the submatrix of A consisting of the second to twelfth rows of the fourth and fifth columns
`A(2:12,:)`	the submatrix of A consisting of the second to twelfth rows of all columns
`A([1:4,6],:)`	the submatrix of A consisting of the first to fourth rows and sixth row
`[A B; C D]`	creates the matrix $\begin{bmatrix} A & B \\ C & D \end{bmatrix}$ where A, B, C, D are block matrices (blocks must have compatible sizes)
`rand(12,4)`	12×4 matrix with uniform random numbers in $[0, 1)$
`zeros(12,4)`	12×4 matrix of zeroes
`ones(12,4)`	12×4 matrix of ones
`eye(12)`	12×12 identity matrix
`eye(12,4)`	12×4 matrix whose first 4 rows are the 4×4 identity
`linspace(1.2,4.7,100)`	row vector of 100 equally spaced numbers from 1.2 to 4.7
`diag(x)`	matrix whose diagonal is the entries of $\mathbf{x}$ (other elements are zero)
`diag(x,n)`	matrix whose diagonal is the entries of $\mathbf{x}$ on diagonal n (other elements are zero)
`sum(x)`	sum of the elements of $\mathbf{x}$

`A\b`	returns the solution $\mathbf{x}$ to $A\mathbf{x} = \mathbf{b}$
`A^(-1)`	returns the inverse of A
`rref(A)`	returns the reduced row echelon form of A
`det(A)`	returns the determinant of A
`norm(A)`	returns the (operator) norm of A
`cond(A)`	returns the condition number of A
`length(A)`	returns the larger of the number of rows and number of columns of A
`norm(x)`	returns the norm (length) of a vector $\mathbf{x}$
`vander(x)`	returns the Vandermonde matrix for the points of $\mathbf{x}$
`polyval(a,x)`	returns the values of the polynomial $a_1x^{n-1} + a_2x^{n-2} + \dots a_n$ at the points of $\mathbf{x}$
`[Q R] = qr(A,0)`	returns the matrices Q and R in the QR factorization of A
`nextpow2(N)`	calculates the next power of 2 of N
`fft(f,N)`	FFT transform of the vector $\mathbf{f}$ using N points (pads $\mathbf{f}$ with zeros if it has fewer than N elements)
`polyval(A)`	returns the coefficients of the characteristic polynomial of A
`roots(a)`	returns the solutions to $a_1x^{n-1} + a_2x^{n-2} + \dots a_n = 0$
`[V D] = eig(A)`	returns the matrix V whose columns are normalized eigenvectors of A and the diagonal matrix D of corresponding eigenvalues
`plot(x,y,'bo')`	plots the points of $\mathbf{y}$ against the points of $\mathbf{x}$ using blue dots
`plot(x,y,'r-')`	plots the points of $\mathbf{y}$ against the points of $\mathbf{x}$ using red lines
`semilogy(x,y,'bo')`	plots $\mathbf{y}$ against $\mathbf{x}$ using a logarithmic scale for $\mathbf{y}$
`axis([-0.1 1.1 -3 5])`	changes the axes of the plot to be from -0.1 to 1.1 for the x-axis and -3 to 5 for the y-axis
`hold on`	puts any new plots on top of the existing plot
`hold off`	any new plot commands replace the existing plot (this is the default)
`plot3(x,y,z,'bo')`	plots the points of $\mathbf{z}$ against the points of $\mathbf{x}$ and $\mathbf{y}$ using blue dots
`for k=1:10 ... end`	for loop taking `k` from `1` to `10` and performing the commands ... for each