TECHNISCHE UNIVERSITÄT DRESDEN

INTRODUCTION TO MATLAB

Intro: basic commands

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00 Exercises

Define the following variables: $a = 3$, $b = -1$, $c = 7$, $d = -c$.

Evaluate the following:

1. $ab - c =$
2. $\frac{a+b}{c} =$
3. $a + \frac{b}{c} + d =$
4. $\frac{a+b}{c} + d =$
5. $\frac{a+b}{c+d} =$
6. $a - bc + 2^a + 2 =$

Add parenthesis to make the expressions clearer

1. a^b/2^c =
2. a*b^c*3 - d =

00 Unnecesary parenthesis

- ((a+b)^c)^d = (a+b)^c^d
- (a+b)^(c^d) = ?

00 Vectors

- For vectors A = [-2,-3,-5], B = [2;3;5].

  A' = $\begin{pmatrix} -2 \\ -3 \\ -5 \end{pmatrix}$ = [-2;-3;-5]

  (A')' = A = [-2,-3,-5] = -B'
- Evenly-spaced entries in a vector
  - C = 0:10:100
  - C = linspace(0,100,11)

00 Exercises for vectors

Define the vectors A = [-2,-3,-5], B = [2;3;5].

1. Find the sum of the elements of vector A.
2. The inner product in mathematics is defined, for two vectors X = [a,b,c] and Y = [d, e, f], as $X \cdot Y = ad + be + cf$. Find the inner product $A \cdot B$.

Define the vector C = [1, 2, ..., 1030]

1. Read out the first three and the last thirty elements of C. Name the result X. Then, X = [1,2,3,1001,1002,...,1030]
2. Read out all the even elements (divisible by 2) of C.
3. Read out all the odd elements (not divisible by 2) of C.
4. Create a vector Y with the elements of C in reverse order.
5. Replace the fifth, sixth, ..., twelfth elements of Y with the vector [10,15,...,45]

00 Commands used

- help
- clc
- clear /clear all
- format short/long
- who, whos
- 6.022e23 (scientific notation)
- exp, sin, cos, ..., log, log10
- ‘ (transpose)
- linspace, 1:10:100
- size, length, numel