Homework 0

This is a practice assignment to make sure that you are comfortable with the basics of Matlab and Scorelator. You have ten attempts (and you can have more if you need them). The assignment will not count towards your final grade, but you will need to know how to do everything in here for all future assignments.

Problem 1: Variables and Basic Computation

Define the following variables in Matlab: $x = 10$, $y = -2$ and $z = \pi$.

(a) Save z in the file `A1.dat`.

(b) Calculate $x + y - z$ and save your answer in the file `A2.dat`.

(c) Calculate x^3 and save your answer in the file `A3.dat`.

(d) Calculate e^{-y} and save your answer in the file `A4.dat`. (Hint: Look up the function `exp()`.)

(e) Calculate $\cos(zy)$ and save your answer in the file `A5.dat`. (Hint: Look up the function `cos()`.)

Problem 2: Matrices and Vectors

Define the following matrices and vectors in Matlab:

$$A = \begin{pmatrix} -1 & 2 & 1 \\ 3 & 1 & -1 \end{pmatrix}, \quad \mathbf{x} = \begin{pmatrix} 1 \\ 2 \\ -1 \end{pmatrix} \text{ and } \mathbf{y} = \begin{pmatrix} -2 \\ 0 \\ 1 \end{pmatrix}.$$

(a) Save $\mathbf{x}$ in the file `A6.dat`.

(b) Save the second row of A in the file `A7.dat`.

(c) Calculate $\mathbf{x} - \mathbf{y}$ and save your answer in the file `A8.dat`.

(d) Calculate $A\mathbf{y}$ and save your answer in the file `A9.dat`.

(e) Calculate $A(\mathbf{x} + \mathbf{y})$ and save your answer in the file `A10.dat`.