Series 1

1) Solve the following operations on the two given vectors **a** = $\begin{bmatrix} 1 \\ 0 \\ -1 \end{bmatrix}$ and **b** = $\begin{bmatrix} -0.5 \\ 1.5 \\ 0.5 \end{bmatrix}$ and on the two given matrices **A** = $\begin{bmatrix} 1 & -1 & 0 \\ -1 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ and **B** = $\begin{bmatrix} 1 & 0 & 30 \\ 0 & 1 & 15 \\ 0 & 0 & 1 \end{bmatrix}$:

a + b	**a – b**	**a · b**	**a x b**	**|a|**	$\hat{\mathbf{b}}$
Aa	**aA**	**AB**	**BA**	$\mathbf{A}^T\mathbf{B}$	$\mathbf{B}^{-1}\mathbf{b}$

2) Create a C++ program that solves the previous exercise using GLM.
Make sure that you get the same results as in exercise 1).
Also make sure that your code compiles and runs both under Windows and Linux.

Project progress

Milestones:

- You have a solution/workspace for Visual Studio/CodeBlocks with two projects: the graphics engine dynamic library and the client application named according to the choices you made within your group.
- Your code is under version control (GIT) and all the members of the group can push/pull contributions both under Windows and Linux.
- When you do a fresh checkout of the project on a new machine, everything compiles and runs out of the box.

What to do next:

- Add GLM as one of the first dependencies of your graphics engine. You can assume that GLM is part of your own code and consider its header files as additional header files of your library (you can redistribute them along with your own header files). **You are NOT asked to know and explain the source code of GLM**.