2. Project [100 points]

Write a script which has the following functionality inside:

a) [25 points] Write two functions which, given three vectors of length 3 representing the three-dimensional vectors **a**, **b**, and **c**, calculate the scalar triple product, $\mathbf{a} \cdot (\mathbf{b} \times \mathbf{c})$ and the vector triple product, $\mathbf{a} \times (\mathbf{b} \times \mathbf{c})$. In the main part of the script call the functions with arbitrary test values and print input as well as output.

b) [75 points] Write a function (!) which as input has a file name and as output the values from the *x* and the *y* column in two separate arrays. The function should read the data from the first two columns of the specified file and load them into separate arrays. The maximum and minimum values of the *x* and *y* values need to be determined to be able to make a 2D plot with 5 % margins at either side of the plot. Title and axis labels should be optional arguments to the function with the default values "Input data", "x axis", and "y axis". The plot shall not be displayed on the screen but be exported as a pdf file. Moreover, export the data to a csv data file (ending of the data file needs to be changed from the input data file) with one digit to the right of the decimal point for both columns.
Test the function using the file "test_data2.dat" (see Moodle).

Happy coding!