Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Student number\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Assignment 2**

Determine the eigenvalues ,  and the corresponding eigenvectors ,  of the 2×2 matrix . Consider the possible  pairs giving solutions to linear equation system  with

, , and .

**Solution template**

As the matrix needs to be singular for a non-zero solution to , the possible values of  follow from thecharacteristic equation 

   or .

Eigenvector  (non-zero) corresponding to a possible value of  follows from  when the value of  is substituted there:

 :   

 :   

Hence, the eigenvalue-eigenvector pairs of  are given by

 and . 🡸