

# MACM 316 – Homework 1

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- Problems are not to be submitted. The related quiz will be given in class.
- Feel free to use Canvas discussions but please keep in mind that these forums are open.

## A. Calculus

Section 1.1, Ex 6

Section 1.1, Ex 11

Section 1.1, Ex 15

## B. Linear algebra

1. Find the eigenvalues and eigenvectors of the matrix

$$A := \begin{pmatrix} 4 & 0 & 1 \\ -2 & 1 & 0 \\ -2 & 0 & 1 \end{pmatrix}.$$

2. For what values of  $\alpha \in \mathbb{C}$  is the matrix

$$A(\alpha) := \begin{pmatrix} \alpha & 1 & 2 \\ 0 & 1 & 2\alpha \\ 0 & 0.5 & 1 \end{pmatrix}$$

full rank?

Section 6.3, Ex 12

Section 6.3, Ex 14

Section 9.2, Ex 3

## C. Computer Arithmetic and Rounding Error

Section 1.2, Ex 1

Section 1.2, Ex 7

Section 1.2, Ex 13

Section 1.2, Ex 21

Section 1.2, Ex 28

May 6, 2019

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