



Assignment - 12.10.2.2

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Contents

1	Problem	1
2	Solution	1

1 Problem

Write two different vectors having same magnitude

2 Solution

Cosider (1)

$$\vec{a} = 2\hat{i} + 3\hat{j} + k \quad (2)$$

$$\vec{b} = 3\hat{i} + 2\hat{j} - k \quad (3)$$

(4)

1.

$$\|\mathbf{A}\| = |\vec{\mathbf{A}}| = \sqrt{\mathbf{A}^\top \mathbf{A}} \quad (5)$$

$$= \sqrt{(2 \ 3 \ 1) \begin{pmatrix} 2 \\ 3 \\ 1 \end{pmatrix}} \quad (6)$$

$$= \sqrt{4 + 9 + 1} \quad (7)$$

$$= \sqrt{14} \quad (8)$$

2.

$$\|\mathbf{B}\| = |\vec{\mathbf{B}}| = \sqrt{\mathbf{B}^\top \mathbf{B}} \quad (9)$$

$$= \sqrt{(3 \ 2 \ (-1)) \begin{pmatrix} 3 \\ 2 \\ (-1) \end{pmatrix}} \quad (10)$$

$$= \sqrt{4 + 9 + 1} \quad (11)$$

$$= \sqrt{14} \quad (12)$$