

# ASSIGNMENT 6

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Download all python codes from

<https://github.com/Y.Nagarani/ASSIGNMENT6/tree/main/CODES>

and latex-tikz codes from

<https://github.com/Y.Nagarani/ASSIGNMENT6/tree/main>

## 1 QUESTION No 2.5

In  $\triangle ABC$ ,  $A = \begin{pmatrix} 1 \\ 2 \\ 3 \end{pmatrix}$ ,  $B = \begin{pmatrix} -1 \\ 0 \\ 0 \end{pmatrix}$ ,  $C = \begin{pmatrix} 0 \\ 1 \\ 2 \end{pmatrix}$ . Find  $\angle B$ .

## 2 SOLUTION

We know that ,

$$B = \arccos\left(\frac{A^T C}{\|A\| \|C\|}\right) \quad (2.0.1)$$

Then

$$\|A\| = \sqrt{14} \quad (2.0.2)$$

$$\|C\| = \sqrt{5} \quad (2.0.3)$$

$$A^T C = 8 \quad (2.0.4)$$

Substitute above values in (2.0.1) then ,

$$B = \arccos\left(\frac{8}{\sqrt{14}\sqrt{5}}\right) \quad (2.0.5)$$

$$B = 64.6 \quad (2.0.6)$$

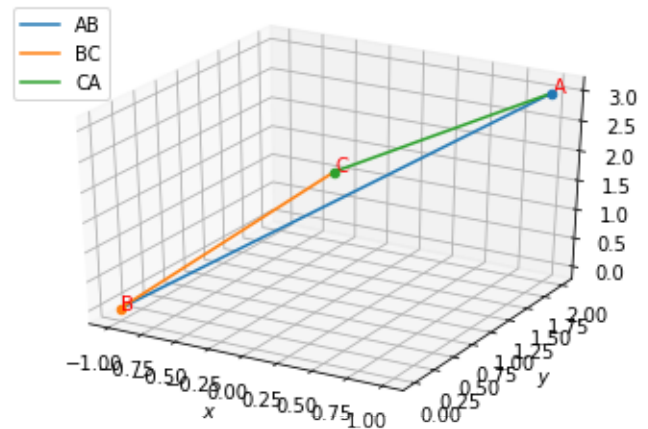


Fig. 0:  $\triangle ABC$