

# Assignment 2

Keshav Roy

Download all python codes from

<https://github.com/KeshavRoy/Distance>

and latex-tikz codes from

<https://github.com/KeshavRoy/Distance>

## 1 PROBLEM

Vectors2 (1.3) Find the distance between the following pairs of points:

$(-3 \ -2)$  and  $(-6 \ 7)$  the axes being inclined at 60 degree

## 2 SOLUTION

$$\text{Given: } A = \begin{pmatrix} -3, \\ -2 \end{pmatrix} B = \begin{pmatrix} -6, \\ -7 \end{pmatrix}$$

$$\theta = 60$$

$$d = \|A - B\| \quad (2.0.1)$$

$$A = \begin{pmatrix} -3 - 2\cos 60 \\ -2\sin 60 \end{pmatrix} = \begin{pmatrix} -4, \\ \sqrt{3} \end{pmatrix} \quad (2.0.2)$$

$$B = \begin{pmatrix} -6 + 7\cos 60 \\ 7\sin 60 \end{pmatrix} = \begin{pmatrix} \frac{5}{2} \\ \frac{\sqrt{3}}{2}7 \end{pmatrix} \quad (2.0.3)$$

Now distance AB is: (2.0.4)

$$d = \|A - B\| \quad (2.0.5)$$

$$\left\| \begin{pmatrix} -4 + \frac{5}{2} \\ -\sqrt{3} - \frac{\sqrt{3}}{2}7 \end{pmatrix} \right\| = \left\| \begin{pmatrix} -\frac{3}{2} \\ -\frac{\sqrt{3}}{2}9 \end{pmatrix} \right\| \quad (2.0.6)$$

$$d = \sqrt{63} \quad (2.0.7)$$

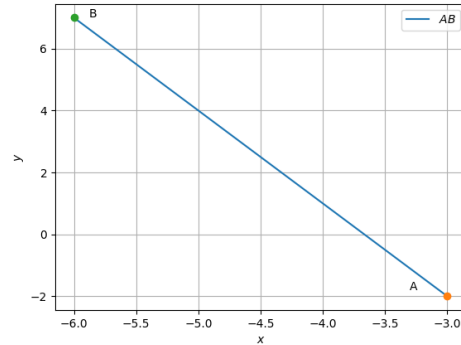


Fig. 0: line