Math Document Template

C ANISH

***Abstract*—This is a document explaining a question about the concept of Circumcenter.**

Download all python codes from

```
svn co https://github.com/chakki1234/summer
    -2020/trunk/linearalg/codes
```

and latex-tikz codes from

```
svn co https://github.com/chakki1234/summer
    -2020/trunk/linearalg/figs
```

1 Problem

Find the distance between the points $\begin{pmatrix}0\\0\end{pmatrix}, \begin{pmatrix}36\\15\end{pmatrix}$

2 Construction

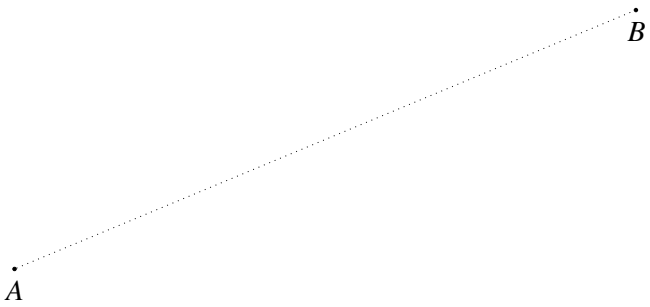

Fig. 2.0: AB by Latex-Tikz

2.1. The figure obtained looks like Fig. 2.0.

2.2. The coordinates are:

$$\mathbf{A} = \begin{pmatrix}0\\0\end{pmatrix} \tag{2.2.1}$$

$$\mathbf{B} = \begin{pmatrix}36\\15\end{pmatrix} \tag{2.2.2}$$

2.3. Draw Fig. 2.3.
Solution: The following Python code generates Fig. 2.3

```
codes/dist_btw_pts.py
```

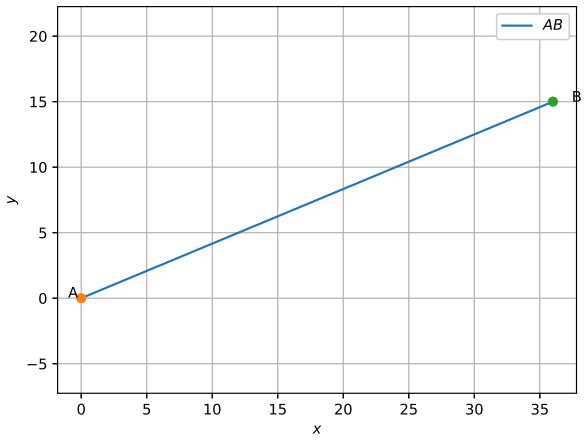

Fig. 2.3: AB generated using python

and the equivalent latex-tikz code generating Fig. 2.3 is

```
figs/dist_bt_pts.eps_fig.tex
```

The above latex code can be compiled as a standalone document as

```
figs/dist_bt_pts.eps_fig_final.tex
```

3 Solution

Solution:

$$\mathbf{A} = \begin{pmatrix}0\\0\end{pmatrix} \tag{3.1}$$

$$\mathbf{B} = \begin{pmatrix}36\\15\end{pmatrix} \tag{3.2}$$

Distance between $\mathbf{A}$ and $\mathbf{B}$ is:

$$\|\mathbf{A} - \mathbf{B}\| \tag{3.3}$$

From the given information:

$$\left\|\begin{pmatrix}0\\0\end{pmatrix} - \begin{pmatrix}36\\15\end{pmatrix}\right\| = 39 \tag{3.4}$$