

Assignment 1

Kavya Kamal

Download all python codes from

<https://github.com/kavyakamal66/IITH-INTERNSHIP/blob/main/Assignment%201/code1.py>

and latex-tikz codes from

<https://github.com/kavyakamal66/IITH-INTERNSHIP/blob/main/Assignment%201/latex1.tex>

The values of P, Q and R are substituted and the triangle is plotted as given above.

1 QUESTION No. 2.14

Construct $\triangle PQR$ given that $PQ = 3$, $QR = 5.5$ and $\angle PQR = 60^\circ$

2 SOLUTION

Given $PQ=3$, $QR=5.5$ and $\angle PQR = 60^\circ$

Let, $PQ=r$, $QR=p$

The vertex P can be expressed in polar coordinate form as:

$$\mathbf{P} = r \begin{pmatrix} \cos \theta \\ \sin \theta \end{pmatrix}, \mathbf{Q} = \begin{pmatrix} 0 \\ 0 \end{pmatrix}, \mathbf{R} = \begin{pmatrix} p \\ 0 \end{pmatrix} \quad (2.0.1)$$

This can be written as,

$$\mathbf{P} = 3 \begin{pmatrix} \cos 60 \\ \sin 60 \end{pmatrix} = \begin{pmatrix} 1.5 \\ (3\sqrt{3})/2 \end{pmatrix}, \mathbf{Q} = \begin{pmatrix} 0 \\ 0 \end{pmatrix}, \mathbf{R} = \begin{pmatrix} 5.5 \\ 0 \end{pmatrix} \quad (2.0.2)$$

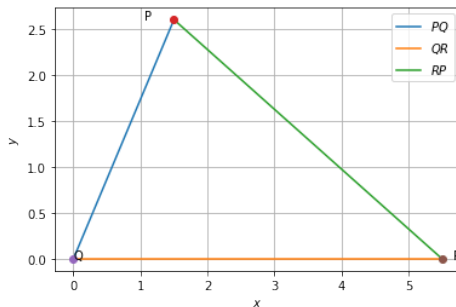


Fig. 0: The Constructed triangle