Assignment 1

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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

1 Question No. 2.14

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

2 Solution

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

Let PQ=r, QR=p

The vertex P,Q and R can be expressed in polar coordinate form as:

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

This can be written as,

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

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

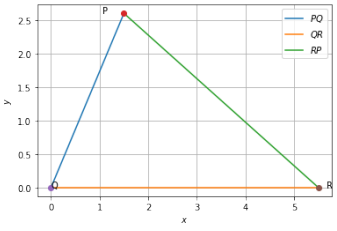

Fig. 0: The Constructed triangle