

Assignment 1

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Download all python codes from

[https://github.com/kavyakamal66/IITH-
INTERNSHIP/blob/main/Assignment%201/
code1.py](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](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 $\angle PQR = 60^\circ$

2 SOLUTION

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

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

This can be written as,

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

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

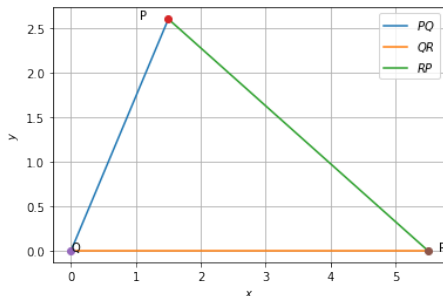


Fig. 0: The Constructed triangle