

Assignment 1

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Download all python codes from

<https://github.com/Gayathri1729/Assignment1>

and latex-tikz codes from

<https://github.com/Gayathri1729/Assignment1>

1 CONSTR-2.27 PART2

Construct $\triangle PQR$ with: $\angle Q = 30^\circ, \angle R = 60^\circ$ and $QR=4.7$.

2 EXPLANATION

Given , $\angle Q=30^\circ, \angle R=60^\circ, QR=4.7$.

Note that,

$$\angle P = 180^\circ - (\angle Q + \angle R) = 90^\circ \quad (2.0.1)$$

That is, the $\triangle PQR$ is a right angled triangle. Let $QR=p$, $PQ=q$ and $PR=r$. Then by Pythagoras Theorem, the sides of the triangle can be obtained by

$$q = p \cos 30 \quad (2.0.2)$$

$$r = p \cos 60 \quad (2.0.3)$$

Then the vertices of the triangle are

$$\mathbf{P} = \begin{pmatrix} 0 \\ 0 \end{pmatrix}, \mathbf{Q} = \begin{pmatrix} 0 \\ q \end{pmatrix}, \mathbf{R} = \begin{pmatrix} r \\ 0 \end{pmatrix}.$$

Knowing all the vertices, now we can construct the triangle.

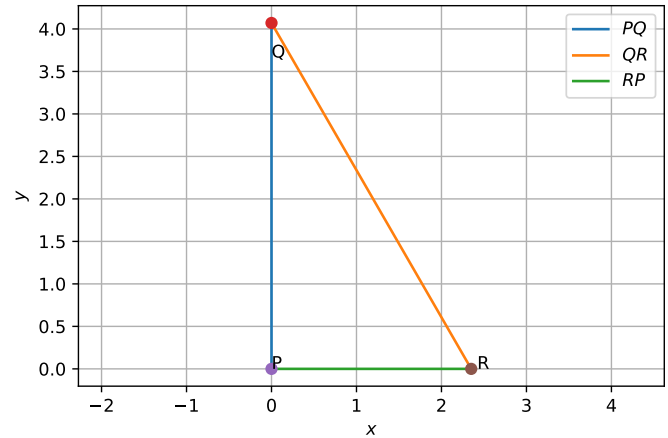


Fig. 2.1: $\triangle PQR$ constructed using python