

MATRIX PROJECT

EE1390

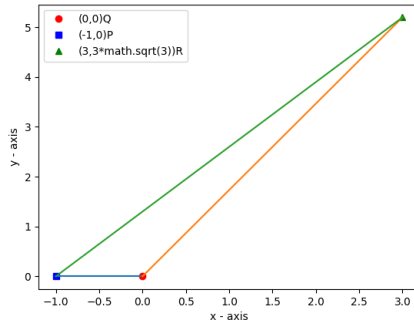
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PROBLEM

Statement

Let $p = (-1, 0)$ $R = (3, 3\sqrt{3})$ and $Q = (0, 0)$ be the points. the equation of the bisector of the angle PQR



This method can be applied for dividing the angle between two lines to n-times

Steps:

$$QP = (-1, 0)$$

$$QR = (3, 3\sqrt{3})$$

$$QR = (1/2, \sqrt{3}/2) - \text{Unit vector on the direction QR}$$

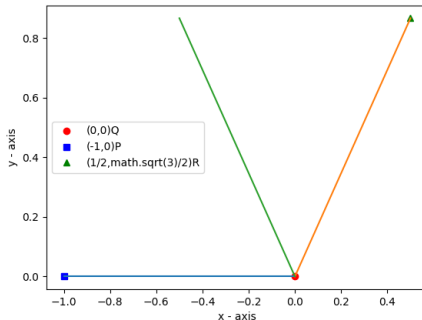
$$(1/2 \quad \sqrt{3}/2) \begin{pmatrix} \cos(x) & \sin(x) \\ -\sin(x) & \cos(x) \end{pmatrix} = (-1, 0)$$

Solving this we get $x = 120^\circ$

Solution

angular bisector =

$$\begin{pmatrix} 1/2 & \sqrt{3}/2 \end{pmatrix} \begin{pmatrix} \cos(60^\circ) & \sin(60^\circ) \\ -\sin(60^\circ) & \cos(60^\circ) \end{pmatrix} = (-1/2, \sqrt{3}/2)$$



Solution2

$$QP = (-1, 0)$$

$$QR = (3, 3\sqrt{3})$$

$$QR = (1/2, \sqrt{3}/2) - \text{Unit vector direction QR}$$

Angular bisector angle is the made by unit vectors $QP+QR$

