Triangles

9^{th} Maths - Chapter 7

This is Problem-5 from Exercise 7.1

1. Line l is the bisector of an angle $\angle A$ and B is a point on line l. $BP = BQ$ are perpendiculars from B to the arms of $\angle A$.
   (a) $\triangle APB \cong \triangle AQB$
   (b) $BP = BQ$ or B is equidistant from the arms of $\angle A$

Construction

The input parameters for the construction are shown in Table

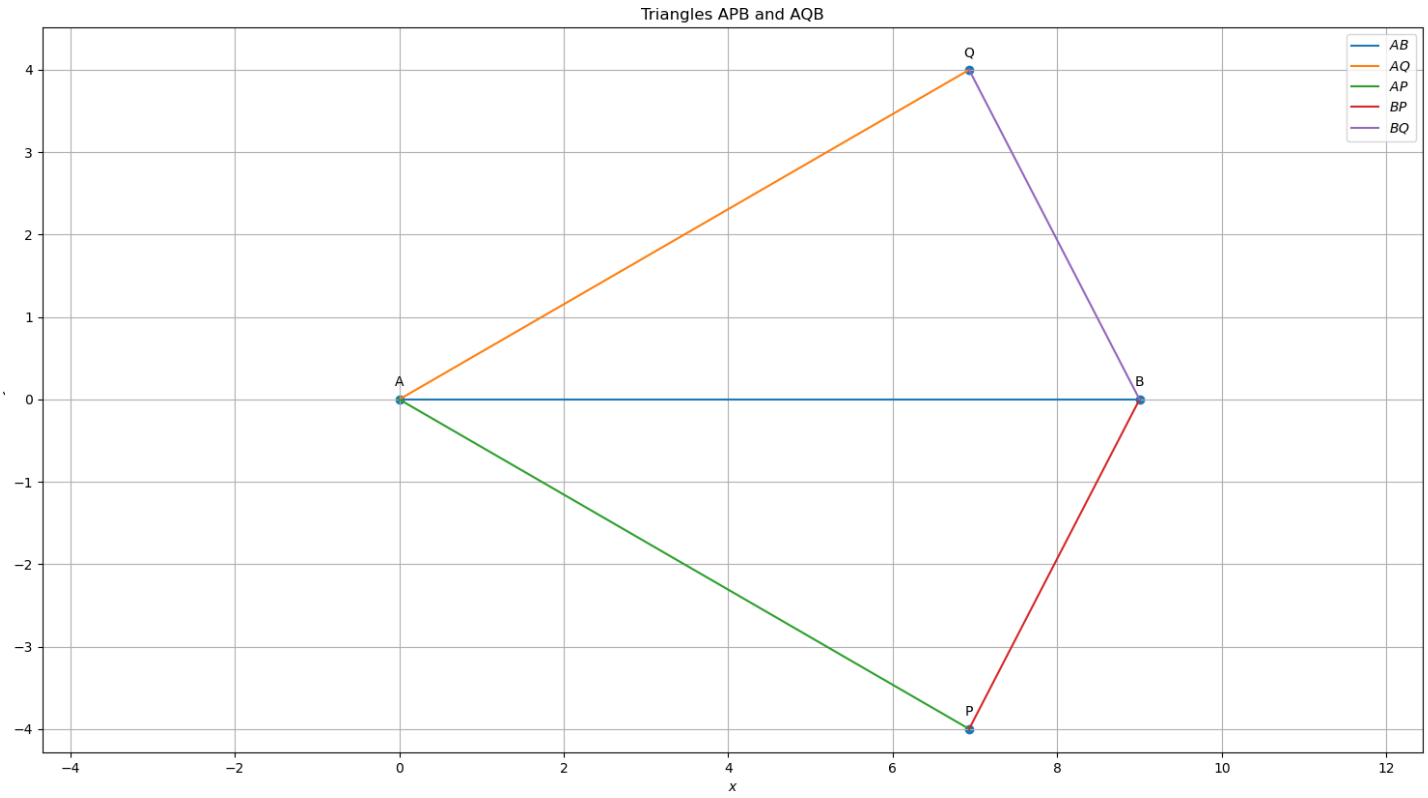

Figure 1: figure

Let $\mathbf{A} = \begin{pmatrix} 0 \\ 0 \end{pmatrix}$, $\mathbf{B} = a\mathbf{e_1}$, $\mathbf{Q} = \begin{pmatrix} c\cos\theta \\ c\sin\theta \end{pmatrix}$, and $\mathbf{P} = \begin{pmatrix} c\cos\theta \\ -c\sin\theta \end{pmatrix}$.

Symbol	Value	Description
θ	30°	$\angle BAP = \angle BAQ$
a	9	AB
c	8	AQ
$\mathbf{e}_1$	$\begin{pmatrix}1\\0\end{pmatrix}$	Basis vector

Table 1: Parameters