

Problem 7.4.2

Sujal Rajani

October 12, 2025

Question

Question: if **A** and **B** are points in the plane such that $\frac{PA}{PB} = K$ (constant) for all **P** on a given circle, then the value of K cannot be equal to .

Solution

SOLUTION $K \neq 1$,

IF $K=1$ then the locus of the position vector **P** is the line which bisect the join of two position vector **A** and **B**.

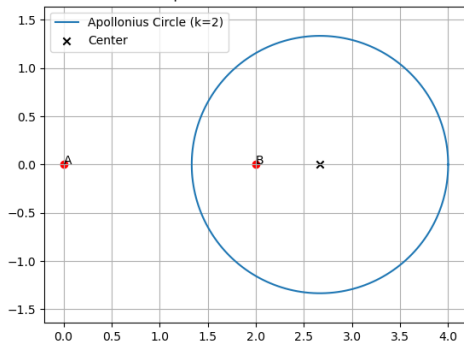
in other cases we always got a Apollonius circle where the value of $k \neq 1$.
for plotting purpose we are taking

$$\mathbf{A} = \begin{pmatrix} 0 \\ 0 \end{pmatrix}, \mathbf{B} = \begin{pmatrix} 2 \\ 0 \end{pmatrix} \quad (1.1)$$

the line is :

$$(1 \ 0) \mathbf{x} = 1. \quad (1.2)$$

Apollonius Circle for $k = 2$



Perpendicular Bisector of AB ($k = 1$)

