# ASSIGNMENT 4

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Download all python codes from

https://github.com/Dishank422/EE3900/blob/main/assignment4/codes

and latex-tikz codes from

https://github.com/Dishank422/EE3900/blob/main/assignment4/Assignment4.tex

## 1 Ramsey 1.2 Loci Q 4

A point moves so that it's distance from the y-axis is equal to the distance from the point $\begin{pmatrix}2\\1\end{pmatrix}$. Find the equation of the locus.

## 2 Solution

Let $\mathbf{A} = \begin{pmatrix}x\\y\end{pmatrix}$ be the point. Then distance from y-axis

$$= x \tag{2.0.1}$$

Distance from $\begin{pmatrix}2\\1\end{pmatrix}$

$$= \sqrt{((x-2)^2 + (y-1)^2)} \tag{2.0.2}$$

We are given that these distances are equal.

$$\implies x = \sqrt{((x-2)^2 + (y-1)^2)} \tag{2.0.3}$$

$$\implies x^2 = x^2 - 4x + 4 + y^2 - 2y + 1 \tag{2.0.4}$$

$$\implies y^2 = 4x + 2y - 5 \tag{2.0.5}$$

Therefore 2.0.5 is the required locus.

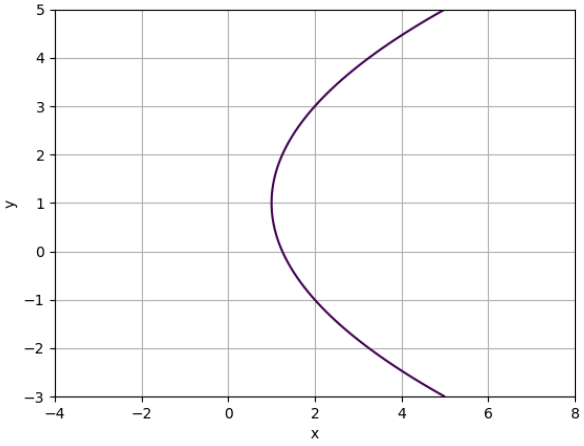


Fig. 0: Plot of the locus