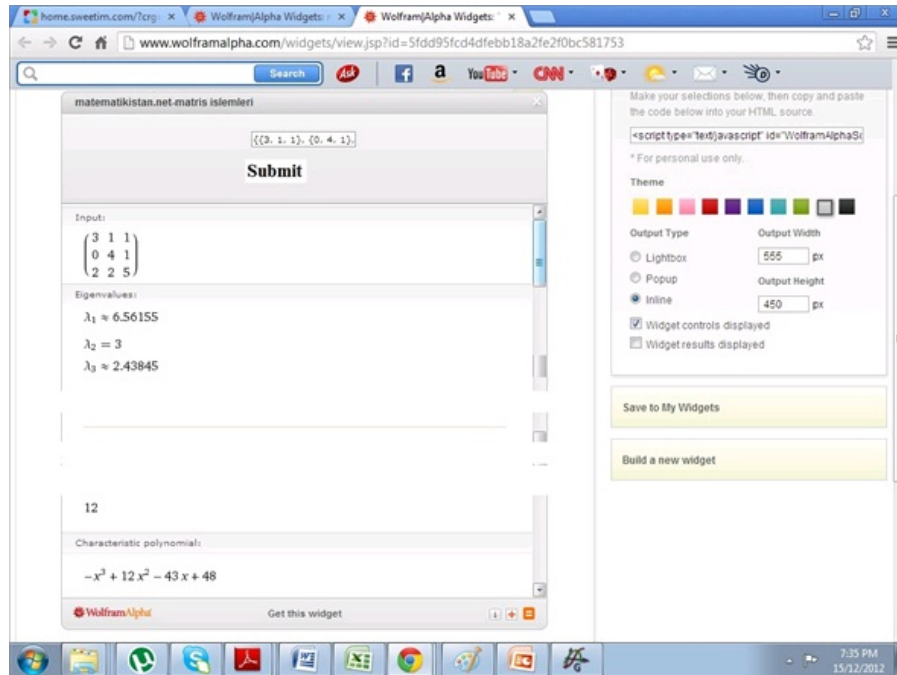


Step-1

Consider the matrix:

$$A = \begin{bmatrix} 3 & 1 & 1 \\ 0 & 4 & 1 \\ 2 & 2 & 5 \end{bmatrix}$$

By using matrix calculator (the screenshot is given below), the eigenvalues of A are given by,



Step-2

The circles that bound the Eigenvalues are C_1 , C_2 , and C_3 .

The center of C_1 is at the point (3, 0).

The radius of C_1 is given by,

$$r_1 = |1| + |1| \\ = 2$$

The center of C_2 is at the point (4, 0).

The radius of C_2 is given by,

$$\begin{aligned}r_2 &= |0| + |1| \\ &= 1\end{aligned}$$

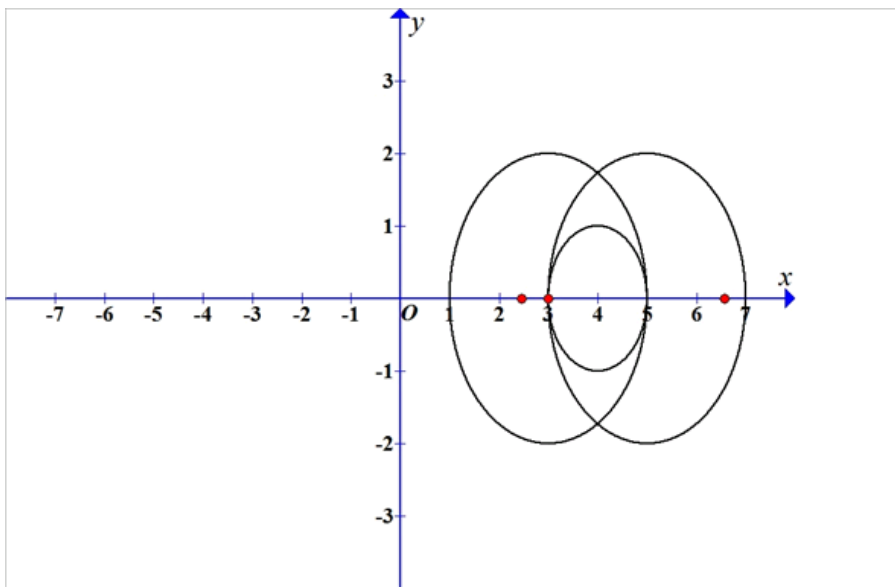
The center of C_3 is at the point $(5, 0)$.

The radius of C_3 is given by,

$$\begin{aligned}r_3 &= |2| + |2| \\ &= 4\end{aligned}$$

Step-3

The graph of circles C_1 , C_2 , and C_3 is given below.



Step-4

Thus, the origin does not lie any in of the circles.