**CSCI 2150L**

**Session 4 Topics:**

1. A special type of matrix namely rotational matrix having the following structure were discussed.

The matrix R above has the determinant of 1. Therefore if applied over a set of points describing an area A the transformed set of points won’t change the area itself; However, the orientation of the area would be rotated by radian in anticlockwise direction.

2. To demonstrate the applicability of *R* above it was applied on an ellipse. We first created an ellipse following parametric equations of ellipse [ with appropriately chosen parameter *t.*

3. Subsequently we created a matrix whose first and second row will be all the points *x* and *y* respectively. Multiplying R with P will give us another set of points such that

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Notice that neither nor is an matrix. The number of column of these matrices depends upon the length of parameter *t*.

4. We obtained two rotated version of for and . Lastly we plotted the original set of points along with its two rotated sets together to convince ourselves of the effect of applying rotational matrix on data sets.