**LAB 5**

Nachiketh Mamidi (Driver)

Ayush Shresth (Scriber)

1.

2.

3. To convert degrees into radians we use the method toRadians.

4. double randomNum = 360 \* Math.random();

        double randomAngle = Math.toRadians(randomNum);

5. The roomba moves from the position (200,200)

6. When we run the program again the roomba moves at a different random location.

7. After we run the program the roomba goes to a position after running at 20 times.

8. After we run the program the circles shows the location of roomba for each run.

9. We change the distance to 5 and we run the program 3000 times. It shows the path of the roomba in a straight line.

10.

11.

/\*\*

 \* Write a description of class RandomWalk here.

 \*

 \* @author (your name)

 \* @version (a version number or a date)

 \*/

public class RandomWalk

{

    public static void main(String[] args)

    {

        Picture vacuum = new Picture("large\_roomba.png");

        vacuum.translate(200, 200);

        vacuum.draw();

        double randomNum = 360 \* Math.random();

        double distance = 5;

        for (int i = 1; i <= 3000; i++)

        {

           double angle = Math.toRadians(randomNum);

           double dx = distance \* Math.cos(angle);

           double dy = distance \* Math.sin(angle);

           vacuum.translate(dx, dy);

           Ellipse circle = new Ellipse(vacuum.getX(), vacuum.getY(), 10, 10);

           circle.draw();

           circle.fill();

        }

    }

}