Focus only on quadrant 1 unless we mention otherwise.

N = total number of darts you throw (assume it is very large).

How to throw a dart? Generate a pair (x,y) where x = random(), and y = random(), so each is a random number in the interval (0,1)

$$\frac{\text{Area of circle.}}{\text{Area of square}} = \frac{(pi/4)}{1}$$

(because area of full circle is pi)

(because area of small square = 1 x 1)

When N is very large,

$$\frac{n}{N} = \frac{\text{Area of circle}}{\text{Area of square}} = pi / 4$$

Which means:

pi = (4 * n) / N

We know N, we know 4. All we need to do is to find n,

where n = number of darts that fall inside circle.

How? Use the equation of the circle.

Point (x,y) falls INSIDE the circle if (x**2 + y**2) <= 1. (Less than or equal to 1)

Otherwise, the point falls outside the circle but in the square.