Estimating Pi with R

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Some basic R and tidyverse practice for a midterm: we use the good ol' "generate a bunch of points" strategy. `generate_points(n)` samples n random points in $[-1, 1] \times [-1, 1]$, and calculates the distances to origin. It also marks if the point falls in the unit circle.

```
generate.points <- function(n) {
  points.x <- replicate(n, runif(1, min=-1, max=1))
  points.y <- replicate(n, runif(1, min=-1, max=1))

  points <- data.frame(points.x, points.y) %>%
    mutate(dist = sqrt(points.x ** 2 + points.y ** 2)) %>%
    mutate(in.circle = dist <= 1)

  points
}

points <- generate.points(10000)
```