

A Gentle Introduction to R

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Outline

- ▶ Why R?
- ▶ Tools that I'm using in this presentation.
- ▶ Important Data Types
- ▶ Random Number Generation
- ▶ Plotting
- ▶ File Input
- ▶ Simple Linear Regression
- ▶ Multiple Linear Regression

Why R?

Tools Used in this Presentation

- ▶ R
- ▶ RStudio

Random Number Generation

Stupid Math Tricks: Computing Pi using Random Numbers

First: The Theory

- ▶ A square with sides of length 2 has its center at the origin.
- ▶ A circle with a radius of length 1 has its center at the origin.
- ▶ The length of the side of the square is 2 times the radius of the circle.
- ▶ Area of the square: $(2 * r)^2$ or $4r^2$ or 4.
- ▶ Area of the circle: πr^2 or π .
- ▶ The ratio of the area of the two shapes is
$$\frac{\pi}{4} = \frac{\text{Area of the Circle}}{\text{Area of the Square}}$$
- ▶ This means we can write π as
$$\pi = \frac{4 \times \text{Area of the Circle}}{\text{Area of the Square}}$$