

<https://classroom.github.com/a/xsPwAqBa>

Assume  $X_1, \dots, X_5 \sim_{iid} \text{Bernoulli}(p = \pi/4)$ . We will be interested in the probability that 3 of the 5 random variables are equal to 1, but the order is not important.

1. Notice that there are many ways that 3 of the 5 random variables are 1. How many ways can this happen?

2. What is the probability that  $\sum_{n=1}^5 X_n = 3$ , that is the probability that (exactly) three of the random variables are 1? Hint:

We've learned that anytime we think "and" in probability we multiply. To extend this, anytime we think "or" we should add. To appropriately calculate this probability, we need to add together multiple probabilities of exact sequences.

3. Provide R code to approximate the probability that three of the random variables are equal to 1.