

COMP 1433 Quiz 2 (Thursday)

1. What's the probability of getting 1 or less head if we toss the coin 10 times?

A. `pbinom(1,10,0.5)`
B. `pbinom(10,1,0.5)`
C. `pbinom(0.5,10,1)`
D. `pbinom(0.5,1,10)`

The function `pbinom` returns the value of the cumulative density function (cdf) of the binomial distribution given a certain random variable `q`, number of trials (`size`) and probability of success on each trial (`prob`). The syntax for using `pbinom` is as follows:
`pbinom(q, size, prob)`

2. How to randomly sample 1 number from 1,2,3...10?

A. `sample(1:10,1)`
B. `sample(1:10)`
C. `sample(1,1:10)`
D. `sample(10:1)`

`sample(object, number)`

`sample(object)` will randomly permute the object

3. (True or False) If we have run `set.seed(N)`, all the following runs of `rnorm(M)` will produce exactly the same results.

A. True
B. False

Re-run `set.seed(N)` before `rnorm` to make sure reproducibility.

4. (True or False) With 1 billion Monte Carlo simulations, we can calculate the exact number of π .

A. True
B. False

Monte Carlo Principal: In repeated independent tests with the same actual probability p of a particular outcome in each test, the chance that the fraction of times that outcome occurs differs from p converges to zero as the number of trials goes to **infinity**.

5. Which of the following usually does not follow Poisson distribution?

A. **Waiting time for Covid-19 test.**
B. Arrival of buses.
C. Errors in software.
D. Number of daily reported Covid-19 cases in PolyU.

Poisson distribution is often used to model events that occur within a short period of time or simultaneously.