Week\_4 HA

1. Algebra

Let us construct an algebra in case of a throwing a die. Let define events as

1) Construct a

2) If the die is fair enough, calculate

1. Let and consider

1. Let’s denote the event of active covid-19 as and of the high temperature . And the joint probability as

Answer the followings

* 1. What is the probability of the temperature high ?
  2. What is the conditional probability ?
  3. What is the conditional probability
  4. What is the conditional probability ?

1. The experiment two coins sample space is

Define a R.V. as

1. Find
2. Find
3. An exponential R.V.

If a pdf of a R.V.

1. find
2. Find the varience
3. has the probability density function as,

* 1. Calculate
  2. Calculate

1. (as Example 2.18) Given two R.V.’s whose pdf’s are and and they are independent. Define anther R.V. as
   1. Prove
   2. Let

Find the pdf of

1. A R.V. , another R.V. e and they are independent. Define

* 1. Find and
  2. Find pdf of Y

1. Given a joint pdf

* 1. Prove the probability
  2. Find the marginal probability and
  3. Is the two R.V.’s are independent?
  4. Find and f(y|x)

1. Give a function as
   1. Determine for to be a pdf
   2. Find
   3. Find
2. Prove the statement in the prob.35 in Chapter 2

Hint\_1: for any R.V’s

What does it mean? As it is called an iterative expectation, so

Hint\_2:

1. Prove the statement in the prob.40, in Chapter 2)

The sample variance is an unbiased estimator of the variance of , where is a sample value of , and is the sample mean.

1. Let consider a R.P. , which satisfies the following conditions.

* Dynamics
* Statistical conditions

And and are independent

* 1. Find
  2. Find