

# Theoretical Statistics: Topics for a Core Course

## Exercise Solutions

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Update: August 28, 2021

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# Preface

This note contains the solution of the exercises in the textbook, *Theoretical Statistics: Topics for a Core Course*, and it was created by Hyunsung Kim, who is a Ph.D. student. I wrote it when I study a theoretical statistics based on this textbook on my own by solving some exercises and also referred to the solution manual in the textbook.

It contains a few selected exercises in the textbook what I studied, and also note that it may not be the exact solutions. If you want to refer to this note, you should study with doubt about the answer.

## Textbook

- *Theoretical Statistics: Topics for a Core Course, Robert W. Keener.*

# Chapter 1

## Math symbol test

### Theorem symbol

**Theorem 1.0.1** (Pythagorean theorem). *This is a theorem about right triangles and can be summarised in the next equation*

$$x^2 + y^2 = z^2$$

*Proof.* dkdkdk

□

And a consequence of theorem ?? is the statement in the next corollary.

**Corollary 1.0.2.** *There's no right rectangle whose sides measure 3cm, 4cm, and 6cm.*

You can reference theorems such as ?? when a label is assigned.

**Proposition 1.0.3** (Consistency). *ddfafa*

**Lemma 1.0.4.** *Given two line segments whose lengths are  $a$  and  $b$  respectively there is a real number  $r$  such that  $b = ra$ .*

**Remark 1.0.5.** *This statement is true, I guess.*

**Definition 1.0.6** (Fibration). *A fibration is a mapping between two topological spaces that has the homotopy lifting property for every space  $X$ .*

**Example 1.0.7** (Continuous prob). This statement is true, I guess.

## Chapter 2

# Probability and Measure

Basic measure theory