

Prob & Stats

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1 Introduction

Prob & Stats is Not New.

The concept of chance of uncertainty.

2 Sets and Elements

A “**set**” is clearly defined collection of “**elements**”.

Sets are clearly defined, but not necessarily finite.

2.1 Symbols

When element “ a ” belongs to set “ A ”, we write

$$a \in A$$

That means “ a is an element of A ”.

If element “ b ” is outside set “ A ”, we write

$$b \notin A$$

If the elements of set B are contained within set A

$$B \subset A$$

That means “ B is subset of A ”.

A set containing no elements is called “**null set**” and written as “ \emptyset ”.

Let's consider 2 sets A and B

The set created by the elements belonging to both A & B is called the “**intersection**”.

$$A \cap B$$

The set created by all the element of A & B is called the “**union**”

$$A \cup B$$

All elements outside both A & B from the “complementary” set.

$$\overline{A \cup B} = U - (A \cup B)$$

Note

In some textbook, this symbol, “ U ” means “**Everything**”.

2.1.1 Practice Exercise

$$U = \{1, 2, 4, 8, 10\}, A = \{4, 8\}$$

Note : “ U ” is the “entire universe”, and A is a subset of U .

1. $A \cap U = \{4, 8\}$
2. $A \cup U = \{1, 2, 4, 8, 10\}$
3. $B = \overline{A} = \{1, 2, 10\}$
4. $A \cap B = \emptyset$
5. $A \cup B = \{1, 2, 4, 8, 10\}$

2.2 Rules