Countable/Uncountable. An infinite set *A* is *countable* if there is a one-to-one correspondence

between the elements of *A* and the set of natural numbers {1*,* 2*,* 3*, . . .*}. A

set is *uncountable* if it is neither finite nor countable. If we say that a set has *at most*

*countably many* elements, we mean that the set is either finite or countable.

Every infinite sequence of distinct items is a countable set, as its indexing puts it in

one-to-one correspondence with the natural numbers

**What is Infinite Sequence?**

Examples of uncountable sets

include the real numbers, the positive reals, the numbers in the interval [0*,* 1], and the

set of all ordered pairs of real numbers. An argument to show that the real numbers

are uncountable appears at the end of this section. Every subset of the integers has

at most countably many elements.

**Learned Something New !!**

**Figure 1.4 Partition of *S* determined by three events *A*1, *A*2, *A*3.** (pg- 11)





**Proof That the Real Numbers Are Uncountable -George Cantor** (pg-13)

Watch Infinite Series- Probability

**Theorem 1.5.4**

If *A* ⊂ *B*, then Pr*(A)* ≤ Pr*(B)*.

**Proof** As illustrated in Fig. 1.8, the event *B* may be treated as the union of the

two disjoint events *A* and *B* ∩ *Ac*. Therefore, Pr*(B)* = Pr*(A)* + Pr*(B* ∩ *Ac)*. Since

Pr*(B* ∩ *Ac)* ≥ 0, then Pr*(B)* ≥ Pr*(A)*.









**What is Bonferroni Inequality**

**You can Check it out in free time : Stirling’s Formula (used To approximate large calculations of Permutation )**

**The Tennis Tournament**

**Example": 2.14 A Clinical Trial. (pg-57)**

**Learn From Online:**

**Prove for Multiplication Rule For Conditional Probability (pg-59)**

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