

10.23: Review for this month.

Probability:

sample space,
outcome

may possible at
↓
A, B

events,
(A, B)

A, B
A ⊆ A, B

probability
↓
a facts:

events
P(A)
 $0 \leq P \leq 1$

independence of two events:

$$P(A \cap B) = P(A)P(B)$$

random variable: the outcome \rightarrow real value
X function

mass density function: $P(X=c) = f(c)$
a facts of c

Expectation: $E(X) = \sum_i P(X=c) \cdot c$
c is possible values,
after be value

Expectation is a motivation to study series (Article is helpful)

Probability

complement rule:
addition rule

$$P(A^c) = 1 - P(A)$$

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

And Exple: toll a de (flip a coin)

(Character series)

Seqes: $\{a_n\}$ conver / diver

Set: $\sum_{n=1}^{\infty} a_n$ partial sum conver / diver.

Seqes conver: write ϵ test. (Absolute conver)
Also use the property of limit.

Set: Exple: $\sum_{n=1}^{\infty} \frac{1}{n^2} - \frac{1}{n+1}$
 $\sum_{n=1}^{\infty} \left(\frac{1}{n^2} - \frac{1}{n+1} \right)$

Arith seq: $\sum_{n=1}^{\infty} a^{n-1}$, partial sum, formula,

p-type $\sum_{n=1}^{\infty} \frac{1}{n^p}$

Setms conver / diver

① Test for diver. ($\sum a_n < \infty \Rightarrow \lim a_n = 0$)

we can see the test is like
② Integral test (draw the graph), like the area of function.

③ Alternating series, absolute conver

④ 12th Est

