Lecture 6 Notes for STT861

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1 Review

	WOR	**WR**
Ordered	$\frac{n!}{(n-r)!}$	n^r
Unordered	$\frac{n!}{r!(n-r)!} = \binom{n}{r}$	$\binom{n+r-1}{r}$

2 Class Notes

Lots of Examples.

Def If A, B are two events with $P(B) > 0$, then the **conditional probability** of $A|B$ is

$$P(A|B) = \frac{P(A \cap B}{P(B)}$$

If $P(B) = 0$, $P(A|B)$ is undefined
$P(A \cap B) = P(B)P(A|B)$
$P(A \cap B) = P(A)P(B|A)$

Def If $E_1, E_2, ..., E_n$ are events,
$P(E_1 \cap E_2 \cap ... \cap E_n) = P(E_1)P(E_2|E_1)P(E_3|E_1 \cap E_2)...P(E_n|E_1 \cap E_2 \cap E_3 \cap ... \cap E_{n-1})$