Cheatography

EECS 203 Exam 2 Cheat Sheet by Kalbi via cheatography.com/19660/cs/2790/

Permutations, no repetition Pascal's identity permutations, no repetition (25.5.40) Permutation formula, ORDER MATTERS (i.e. ways to sort 5 of 10 students in a line) biomial coefficients, a recursive definition Permutations, repetition centro estate definition Permutations, no repetition centro estate definition Combinations, no repetition centro estate definition Students) students) Combinations, repetition centro estate definition Students) students) Rescaled and their Order does not matter, line committee of 3 out 3 for proving things Combinations, repetition useful for proving things Students) for proving things Probability of union of 2 events strue state definition of independent event Students) for proving things Proving things strue state definition Students) for proving things Probability of E given F E[F] strue therma		
Image: International Control Internation Control International Control International Co	Permutations, no repetition	Pascal's identity
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Permutations, repetition		binomial coefficients, a recursive definition
Product spaceConditional or specifiesCompliance of a subset of sample space.Compliance of a subset of sample space.Combinations, no repetition $event over sample space. event is a subset of sample spaceevent over sample space. event is a subset of sample spaceCombinations, no repetitionevent over sample space. event is a subset of sample spaceevent over sample space. event is a subset of sample spacecombinations, no repetitionevent over sample space. event is a subset of sample spaceevent over sample space. event is a subset of sample spacecombinations, repetitionevent over sample space. event is a subset of sample spaceevent over sample space. event is a subset of sample spaceCombinations, repetitionevent over sample space. event is a subset of sample space. event is a subset of sample space.event over sample space. event is a subset of sample space. event is a subset of sample space.Combinations, repetitionevent over sample space. event is a subset of sample space. Event subset of sample s$	Permutations, repetition	Finite probability
Very desy, just use product rule as shown Combinations, no repetition	The number of <i>r</i> -permutations of a set of <i>n</i> objects with repetition allowed is n^r .	
Combinations, no repetition	very easy, just use product rule as shown	event over sample space. event is a subset of sample space
Provided and all and a containers Image: Control and a containers Combinations, repetition Image: Control and a containers Description and stars? Order does not matter, ways to select bills/fuil and place in a container Conditional Probability C/P Quick table Conditional foremula, No Direct matters Market a container C/P Quick table Image: Conditional foremula (Control and foremulations) Quick reference Image: Control and foremula (Control and foremulations) Quick reference Image: Control and foremulations (Control and foremulations) Quick reference Image: Control and foremulations (Control and foremulations) Binomial Theorem Image: Control and foremulations) Image: Control and foremulations (Control and foremulations) Image: Control and foremulations) Image: Control and foremulations (Control and foremulations) Image: Control and foremulations) Quick reference Image: Control and foremulations) Image: Control and foremulations) Image: Control and foremulations) I	Combinations, no repetition	Compliment of probability event
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5 students) Probability of union of 2 events Combinations, repetition Interpretation of the state of the	$C(n,r) = \frac{n}{r!(n-r)!}.$	technique to calculate some probabilities
Combinations, repetition Interface of the set of the		Probability of union of 2 events
Bars and stars! Order does not matter, ways to select bills/fruit and place in a container C/P Oulck table	Combinations, repetition	
Early container Image: C/P Quick table TABLE 1 Combinations and Permutations With and Without Repetition. Image: C/P Quick table Type Repetition Allowed? Type Repetition Allowed? repermutations No $\frac{n!}{r_1(n-r)!}$ Use for proofs Pigeonhole Principle If k is a positive integer and k+1 or more objects are placed into boxes, at least 1 box has 2+ objects Binomial theorem coefficient is a Combination. Bernoulli trials probability of success Binomial theorem coefficient is a Combination. Bernoulli trials probability o		useful for proving things
in a containerC/P Quick tableTABLE 1 Combinations with and Without Repetition. $\overline{DAPLE 1}$ Combinations with and Without Repetition. $\overline{Definition of independent event$ $\overline{Definition of independent event$ $r_{permutations}$ No $\frac{n!}{(n-r)!}$ $r_{permutations}$ No $\frac{n!}{r_{(n-r)!}}$ $r_{permutations}$ Yes $u' = r_{permutations}$ Yes $u' = r_{permutations}$ No $\frac{n}{r_{(n-r)!}}$ $r_{permutations}$ Yes $u' = r_{permutations}$ No $u' = r_{permutations}$ No $u' = r_{permutations}$ No $u' = r_{permutations}$ No $u' = r_{permutations}$ <	Bars and stars! Order does not matter, ways to select bills/fruit and place	Conditional Probability
Index is a Combinations and Permutations With and Without Repetition.TypeRepetition Allowed?FormulaTypeNo $\frac{n!}{(n-r)!}$ r-combinationsNo $\frac{n!}{r!(n-r)!}$ r-combinationsYes n' guick referenceIf k is a positive integer and k+1 or more objects are placed into boxes, at least 1 box has 2+ objectsbinomial theorem coefficient is a Combination.Bernoulli trials probability of successbinomial theorem coefficient is a Combination.Iteration is a Combination.		
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$r_{permutations}$ No $(n-r)!r_{combinations}No\frac{n!}{r!(n-r)!}r_{permutations}Yesn''r_{combinations}Yesn''r_{combinations}Yes\frac{(n+r-1)!}{r!(n-1)!}quick referenceIf theoremBinomial TheoremIf the nonline time time time time time time time tim$		Definition of independent event
$\frac{r_{1}(r_{1}-r_{2})}{r_{2}}$ r_{2}	<i>r</i> -permutations No $\frac{(n-r)!}{(n-r)!}$	The events E and F are independent if and only if $p(E \cap F) = p(E)p(F).$
P-combinations Test $r!(n-1)!$ quick reference Pigeonhole Principle Binomial Theorem Iff BINOMIAL THORNEY. Let a and y by variables, and let be a nonnegative integer. Theorem if k is a positive integer and k+1 or more objects are placed into boxes, at least 1 box has 2+ objects Binomial theorem coefficient is a Combination. Bernoulli trials probability of success	r!(n-r)!	use for proofs
Binomial Theorem if k is a positive integer and k+1 or more objects are placed into boxes, at least 1 box has 2+ objects It is a positive integer and k+1 or more objects are placed into boxes, at least 1 box has 2+ objects Bernoulli trials probability of success binomial theorem coefficient is a Combination.		Pigeonhole Principle
Item BINOMIAL THEOREM Let x and y be variables, and let n be anomegative integer. $(x + y)^{\mu} = \sum_{j=0}^{n} {n \choose j} x^{n-1}y^{j} = {n \choose 0} x^{n} + {n \choose j} x^{n-1} + {n \choose n-1} y^{n-1} + {n \choose n-1} + {n \choose n-$	quick reference	THE GENERALIZED FIGEONHOLE PRINCIPLE. If N objects are placed into k boxes, then there is at least one low containing at least (N/k) objects.
$\frac{\text{THE BINMIAL THEOREM Let x and y be variables, and let n be a nonnegative integer.}}{\text{Then}}$ $(x + y)^a = \sum_{j=0}^{a} {n \choose j} x^{a-j} y^j = {n \choose 0} x^a + {n \choose j} x^{a-1} + {n \choose n-1} y^2 x^{a-1} + {n \choose n} y^a.$ Bernoulli trials probability of success binomial theorem coefficient is a Combination. The probability of easily 4 success is independent letids, with probability of diate $q = 1 - p$.	Binomial Theorem	
binomial theorem coefficient is a Combination. $C(n,i)r_{i}^{k}q^{*1}$.	THE BINOMIAL THEOREM Let x and y be variables, and let n be a nonnegative integer. Then	
	$(x+y)^n = \sum_{j=0}^n \binom{n}{j} x^{n-j} y^j = \binom{n}{0} x^n + \binom{n}{1} x^{n-1} y + \dots + \binom{n}{n-1} x^{n-1} + \binom{n}{n} y^n.$	Bernoulli trials probability of success
	binomial theorem coefficient is a Combination.	



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Baye's theorem

BATES'THEOREM Suppose that *E* and *F* are events from a sample space 5 such that $p(E) \neq 0$ and $p(E) \neq 0$. Then $p(F | E) = \frac{p(E | F)p(F)}{p(E | F)p(E + p(E | F)p(\overline{F})}$.

calculate probability of i.e diseases/diagnosis, probability of spam...

By Kalbi



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