

PROBABILITY REVIEW

Page 1 = Combinations or Permutations
 nCr Patterns
 groups

1. All $n!$

2. Use part nPr
 $10P_8$

3. Alike = $\frac{12!}{2!2!2!}$ $\frac{10!}{2!2!2!}$
 THANKSGIVING

4. Set positions — — — —
 Repeat

PROBABILITY

AND = *

OR = +) Subtract overlaps
(will be nCr)

Combinations

- 1) No order
 - 2) No repl.
 - 3) Dep.
- All

Separate Fractions

Any one:

- 1) Order
- 2) Repl.
- 3) Indep (same changes every time)

Binomial Prob

- 1) 2 possible outcomes
 - 2) Indep
- Do same action repeatedly

By calculator:

Binomialpdf
Exactly 8 out of 10

Binomialcdf
At least/At most

Prob (at least one)

$1 - \text{Prob}(\text{none})$

Conditional Prob

$$P(C|M) = \frac{P(CM)}{P(M)}$$

$\uparrow$ find $\uparrow$ know

Expected Value

(Prob.) (Gain/Loss)

Santa = 20 candies
 15 3 2
 reg Win Wmi
 toy \$100

Prob (4 reg, + 1 \$100)

~~no repl.~~ $\frac{15}{20} \cdot \frac{15}{20} \cdot \frac{15}{20} \cdot \frac{15}{20} \cdot \frac{2}{20}$
 yes repl.