

PROBABILITY REVIEW

1-7) Permutation or Combination?
 ↑ patterns ↑ groups

1) Arrange all objects
 $n!$

2) Small group
 $nPr = \frac{n!}{(n-r)!}$

3) Look alike
 $\frac{\text{total!}}{\text{alike!} \cdot \text{alike!}}$

4) Specific positions
or repeat objects

Draw blanks

$$\frac{6 \cdot 5 \cdot 4}{3! 2! 1!} = 4320$$

Probability

Combinations

- 1) No Order
- 2) No repl.
- 3) Dependendn)

$P(\text{lives rural or female})$
 Subtract duplicates/
 overlaps

Pick 4
 $P(\text{at least one male})$
 $= 1 - \text{Prob}(\text{no male})$

Indiv Prob

Replacement
 Order
 Independent

Binomial

2 poss. outcome
 Indep.

Perform same
 action
 Multiple
 times

binomial pdf
 exactly 7 of 10

binomialcdf
 at least/at most

Conditional

Prob
 Tree

$$P(O|L)$$

$$= \frac{P(O \cap L)}{P(L)}$$

$$\text{Expected Value} = (\text{Prob.})(\text{Gain/Loss})$$