

Slide 1

Administrivia

- Reminder: Quiz 4 Wednesday.
- Homework 6 on Web soon. Due next Wednesday.

Slide 2

Minute Essay From Last Lecture

- Question:
 - Given 20 words, how many 6-word phrases can you make up, if no repeated words are allowed? (“refrigerator magnet poetry”)
 - A standard 52-card deck contains 12 face cards (kings, queens, jacks). How many 5-card “hands” (order doesn’t matter) consist only of face cards?
- Answers?

Permutations and Combinations — Eliminating Duplicates

Slide 3

- In general it can be interesting to try to figure out how to “eliminate duplicates” — i.e., account for the fact that one way of counting things produces a lot of duplicate results.
- Example: How many ways can we rearrange the letters in the word “voodoo”?

Permutations and Combinations With Repetitions

Slide 4

- Definitions of $P(n, r)$ and $C(n, r)$ specified “without repeats”. What if we want to allow repeats?
- Permutations: How many ways can we choose an ordered sequence of r things from n possibilities, if we allow repeats? (Not too tough, right?)
- Combinations: How many ways can we choose an unordered collection of r things from n possibilities, if we allow repeats? This is trickier. We’ll use a clever idea from example 58.

Permutations and Combinations, More Examples

- Section 3.2, problem 25.
- Section 3.4 problem 31.

Slide 5

Minute Essay

- Suppose you select 6 marbles at random from a jar containing red, blue, yellow, and green marbles (at least 6 each). How many ways can this selection be made?

Slide 6