Honors Geometry

Unit 11. The Fundamental Counting Principle

Guided Notes and Examples.

The fundamental counting principle essentially says that if there are “a” ways to do event 1, and “b” ways to do event 2, then there are (ab) ways to do events 1 and 2 in succession.

EXAMPLES:

1. On a cruise ship dinner usually consist of 5 appetizers, 6 main courses and 4 deserts. If a meal consists of one appetizer, one main course and one desert, how many different meals could you make?
2. An ATM “Pin” number consists of 4 digits. If the digits cannot be repeated, how many differet “Pin” numbers could be created?
3. Your dad is giving you and four of your friends tickets to a Braves game. Since seats are assigned, how many ways could the assigned seats be distributed?
4. There are 8 lockers that have to be assigned to 8 students. How many different ways can the eight lockers be assigned to the students?
5. Georgia license tags are 4 letters followed by 3 numbers. How many different license plates can be made if
   1. Repetitions of letters and numbers are allowed.
   2. Repetitions of letters and numbers are NOT allowed.
6. A password has to be 5 letters. Letters may not be repeated. The first letter must be a vowel. How many different passwords can be created?
7. How can the letters in word GREYHOUND be arranged?
8. How can the letters in the word MASSACHUSETS be arranged? (this one is a little different)

LET’S ADD JUST A LITTLE PROBABILITY TO THIS.

1. There are five starters on a basketball team. If the starting lineup will be announced to the crowd randomly, what is the probability that you guess the correct order?
2. Three Jerseys must be hung in the lockers of three players. The person hanging the jerseys have no idea what player gets what jersey. What is the probability that she guesses correctly?