

Probability Section 3.5 Counting

Counting Methods

Example 1. If I have 2 jackets, 4 shirts and 3 pants how many different outfits can I get?

Fundamental principle of counting If a first experiment can be performed in M distinct ways, and a second experiment can be performed in N distinct ways, then the two experiments can be performed in

Example 2. How many 4 digit PINs are possible when the first digit can't be repeated?

Example 3. A telephone number has 10 digits:

1. How many possible telephone numbers are there in each area code?
2. How many telephone numbers are there in each area code where the first digit can't begin with a 0 and the last four digits can't repeat?

Example 4. How many ways can eight people line up for a photograph?

Factorial

Example 5. A local television station has eleven slots for commercials during a special broadcast. Six restaurants and 5 stores have bought slots for the broadcast.

- (a) In how many ways can the commercials be arranged?

- (b) In how many ways can the commercials be arranged so that the restaurants are grouped together and the stores are grouped together?