Counting Techniques

Factorials

To compute n!, use the command factorial(n).

```
factorial(7)      # Computes 7!

## [1] 5040
```

Permutations

R does not have a permutation command. However, you can compute it using the formula

$$\frac{n!}{(n-r)!}$$

For example, suppose we want to compute $_7P_5$

```
factorial(7)/factorial(7-5)

## [1] 2520
```

Another option is to build a function in R.

```
perm <- function(n,r){factorial(n)/factorial(n-r)}  #Build a function that
calls n and r
perm(7,5)

## [1] 2520
```

Combinations

To compute a combination in R, use the following command:

choose(*n,r*)

For example, to compute $_{10}C_4$

```
choose(10,4)

## [1] 210
```