

### StatCrunch Lab 5 for Statistics 301

**Topics:** factorials, permutation, combinations

#### Factorials, Permutations and Combinations.

- *Factorial.*  $7!$  is equal to

- $7 \times 6!$
- 5040
- $7 \times 6 \times 5!$
- $7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1$

StatCrunch: Data, Compute expression, fact(7), Compute.

- *Permutation.* Number of ways to park  $n = 7$  cars in  $r = 4$  spots

- ${}_n P_r = \frac{n!}{(n-r)!}$ , where  $n = 7$  and  $r = 4$
- $\frac{7!}{(7-4)!}$
- $\frac{7!}{3!}$
- $7 \times 6 \times 5 \times 4 = 840$

StatCrunch: Data, Compute expression, perm(7,4), Compute.

- *Combination.* Number of ways of dealing  $r = 3$  of  $n = 11$  cards

- ${}_n C_r = \frac{n!}{(n-r)!r!}$ , where  $n = 11$  and  $r = 3$
- $\frac{11!}{(11-3)!3!}$
- $\frac{11!}{8!3!}$
- $\frac{11 \times 10 \times 9}{3 \times 2 \times 1}$
- ${}_{11} C_3 = 165$

StatCrunch: Data, Compute expression, comb(11,3), Compute.