Ex 1) Suppose a traveling salesperson living in city H must visit five of the the seven cities A, B, C, D, E, F, G. Find the number of different routes.

Note Ex 1 is a linear permutation, NOT a circular permutation.

Ex 2) Find the number of arrangements of six of eight letters A, B, C, D, E, F, G, H in a circle.

Ex 3) Find the number of arrangements of six of eight colors A, B, C, D, E, F, G, H in a bracelet.

Ex 4) Find the number of arrangements of six of eight letters A, B, C, D, E, F, G, H in a circle if the arrangement must include the letter H.

Ex 5) How many different teams are possible if there must be 6 members on a team to be chosen from a group of 8 people.

Ex 6) How many different teams are possible if there must be at least one member on a team to be chosen from a group of 8 people.

Ex 7 (p. 45 bottom) The number of 2-combinations of the set $\{1, 2, ..., n\}$ is

For each i, the number of 2-combinations where i is the largest integer in the 2-combination is

Thus,