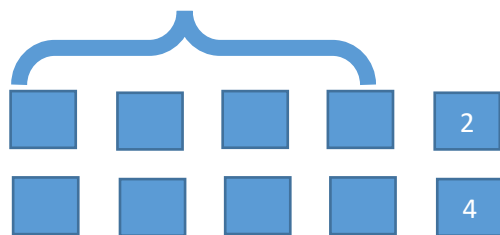A five-digit number is formed by using the digits 1-5 exactly once.
   a.   How many five-digit numbers are there?
   b.   How many of these five-digit numbers are even?

   a.   Find the number of arrangements of five objects

$= 5!$
$= 120$

b. For the number to be even, it must end with either a 2 or 4

      4 objects

4! arrangements that end in 2

4! arrangements that end in 4

In total $= 2 \times 4!$
$= 48$