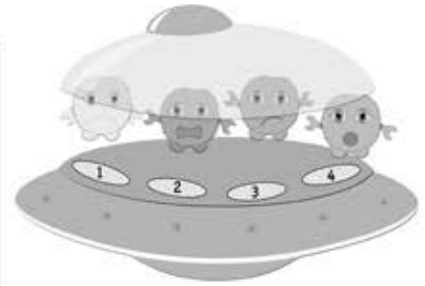


# FACTORIAL !

We use factorial when we need to find all the different orders of arranging a number of objects.

The exclamation point after the number tells us to multiply the number by each of the numbers below it all the way down to 1.



Solve each problem using the factorial notation.

Example

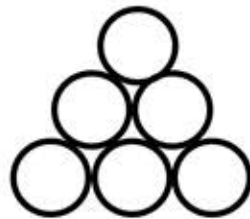
How many different arrangements of the letters M A T H are there?  
(including MATH)

Since the letters are 4 the answer will be  $4!$        $4! = 4 \times 3 \times 2 \times 1 = 24$

1. How many 5 digit numbers can be made with the digits 3, 8, ,6, 2, and 9?

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2. In how many ways can the digits 1-6 placed in the circles so that each digit is in one of the circles.



3. In how many different ways can 7 runners finish in order from 1st-7th in the 100-yard race?

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4. In how many different ways can the digits 0,1,2,3,and 4 be arranged to make a 5-digit number? Zero cannot be used as the hundred-thousands digit.

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