FACTORIALS

Factorial of n or n! is the product of all positive integers less than n. So 8! = 8 x 7 x 6 x 5 x 4 x 3 x 2 x 1 = 40,320 and 11! = 11 x 10 x 9 x 8 x 7 x 6 x 5 x 4 x 3 x 2 x 1 = 39, 916, 800

0! = 1

1! = 1

2! = 2

3! = 6

4! = 24

5! = 120 and so on

TRAILING ZEROS:

In mathematics, trailing zeros are a sequence of 0 in the decimal representation (or more generally, in any positional representation) of a number, after which no other digits follow.

In **5! (120)** there is one trailing zero, whereas in **11! (39,916,800)** has two trailing zeros.

We can calculate the number of trailing zeros, n, in the factorial of any number, x, by the formula

$$n = \frac{x}{5^1} + \frac{x}{5^2} + \frac{x}{5^3} + \cdots + \frac{x}{5^m} \quad (5^m < x)$$

Let us test 11!

$n = \frac{11}{5^1}$ $(5^1 < 11)$

$n = \frac{11}{5^1} = 2$ (So there are **two trailing zeros** in 11!)

Whereas in case of 26!

$n = \frac{26}{5^1} + \frac{26}{5^2} (5^2 < 26)$

$n = \frac{26}{5^1} + \frac{26}{5^2} = 5 + 1 = 6$ (So there are **six trailing zeros** in 26!)