

Pre-Calculus 12 Factorial Notation

Factorials are products, indicated by an exclamation mark.

5! is read as “5 factorial” and means:

$$\begin{aligned}5! &= 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1 \\ &= 120\end{aligned}$$

By definition, $n! = n(n - 1)(n - 2) \dots 1$ where $n \geq 1$ and $0! = 1$

Ex. 1) Without using a calculator, simplify $\frac{11!}{9!}$

Ex. 2) Simplify $\frac{n!}{(n-2)!}$

Ex. 3) Simplify $\frac{(n-6)!}{(n-3)!}$

Ex. 4) Solve for n .

$$(n + 1)! = 12(n - 1)!$$

Ex. 5) Solve.

$$\frac{(n+3)!}{n!} = 24$$

Ex. 6) Evaluate

$$\frac{12!}{9!4!}$$