

Factorials “!”

A factorial is a product of a positive natural (counting) number multiplied by all less positive natural numbers. A factorial is represented by an exclamation point “!”.

Examples: $5! = 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1 = 120$

$$3! = 3 \cdot 2 \cdot 1 = 6$$

$$8! = 8 \cdot 7 \cdot 6 \cdot 5!$$

Example: Simplify $\frac{8!}{5!} = \frac{8 \cdot 7 \cdot 6 \cdot 5!}{5!} = 8 \cdot 7 \cdot 6 = 336$

By definition $0! = 1$

Simplify

1. $4!$

2. $2!$

3. $0!$

4. $6!$

5. $8!$

6. $10!$

7. $\frac{8!}{7!}$

8. $\frac{10!}{8!}$

9. $\frac{5!}{3!}$

10. $(6 - 2)!$

11. $(9 - 4)!$

12. $(10 - 8)!$