

# FATORIAL - SIMPLIFICAÇÃO DE EXPRESSÕES



$$\frac{6!}{4!} = \frac{6 \cdot 5 \cdot \cancel{4} \cdot \cancel{3} \cdot \cancel{2} \cdot \cancel{1}}{\cancel{4} \cdot \cancel{3} \cdot \cancel{2} \cdot \cancel{1}} = 30$$

$6! = 6 \cdot 5 \cdot \underbrace{4 \cdot 3 \cdot 2 \cdot 1}_{4!}$   
 $6! = 6 \cdot 5 \cdot 4!$

$$\frac{6 \cdot 5 \cdot \cancel{4!}}{\cancel{4!}} = 30$$

$$\frac{16!}{12! \cdot 4!} = \frac{\cancel{16} \cdot \cancel{15} \cdot 14 \cdot 13 \cdot \cancel{12!}}{\cancel{12!} \cdot \cancel{4} \cdot \cancel{3} \cdot \cancel{2} \cdot \cancel{1}} = 1820$$

$$\frac{(n+3)!}{(n+1)!} = \frac{(n+3) \cdot (n+2) \cdot \cancel{(n+1)!}}{\cancel{(n+1)!}} = (n+3)(n+2) = n^2 + 5n + 6$$

$$\frac{(n-1)!}{n!} = \frac{\cancel{(n-1)!}}{n \cdot \cancel{(n-1)!}} = \frac{1}{n}$$