Fatorial

1.

a)

$4!$

$4 \cdot 3 \cdot 2 \cdot 1 = 24$

b)

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

$120 - 120 \cdot 6$

$120 - 720 = -600$

c)

$$\frac{9!}{6!} \qquad \frac{9 \cdot 8 \cdot 7 \cdot \cancel{6!}}{\cancel{6!}}$$

$9 \cdot 8 \cdot 7 = 504$

d)

$$\frac{98!}{100!} = \frac{\cancel{98!}}{\cancel{98!} \cdot 99 \cdot 100} = \frac{1}{9900}$$

②

$$\frac{1}{n!} - \frac{n}{(n+1)!} = \frac{1}{n!} - \frac{n}{n!\,(n+1)}$$

$$\frac{n+1-n}{n!\,(n+1)} = \boxed{\frac{1}{(n+1)!} \quad \text{retro A}}$$

③

$$\frac{(n!)^2 - (n-1)!\,n!}{(n-1)!\,n!} = \frac{n! - (n-1)!}{(n-1)!}$$

$$\boxed{n - 1 \\ \text{retro A}}$$

④

$$\frac{(n+2)!\,(n-2)!}{(n+1)!\,(n-1)!}$$

$$\frac{n+2\,(n+2)!}{(n-1)!} = \frac{n+2}{n-1} = 4$$

$n+2 = 4\cdot(n-1)$

$n+2 = 4n-4$

$n = 4n-6$

$-3n = -6$

$n = \dfrac{-6}{-3}$

$n = 2$

etro A

⑤

$$\frac{(n+1)! - n!}{(n+1)!} = \frac{7}{n+1}$$

$$1 - \frac{n!}{(n+1)!} = 1 - \frac{1}{n+1} = \frac{7}{n+1}$$

$$1 = \frac{7}{n+1} + \frac{1}{n+1} = \frac{8}{n+1}$$

$$8 = 1(n+1)$$
$$n = 7$$

Getroi D

⑥

$$(n-1)! \, [(n+1)! - n!]$$
$$(n-1)! \, [(n+1) \, n! - n!]$$
$$(n-1)! \, (n+1-1) \, n!$$

$$(n-1)! \cdot n \cdot n!$$

$$n! \times n! = (n!)^2$$

Retro D

07.

$$\frac{n! + (n-1)!}{(n+1)! - n!} = \frac{6}{25}$$

$$\frac{n(n-1)! + (n-1)!}{(n+1) \cdot n! - n!} = \frac{6}{25}$$

$$\frac{(n-1)! \times (n+1)}{(n+1-1) \times n!} = \frac{6}{25}$$

$$\frac{(n-1)! \cdot (n+1)}{n \cdot n \cdot (n-1)!} = \frac{6}{25}$$

$$\frac{n+1}{n^2} = \frac{6}{25}$$

$$n^2 = 25$$
$$n = \sqrt{25} = 5$$

Setra 6

(8)

$21! - 221$

↑

Entre 1 e 21

Escolher alguns números para multiplicar e tentar achar 0's para poder subtrair.

$5 . 10 . 20 = 1000$

$1000 - 221 = 779$

Erro!