S T Q Q S S D

__/__/__

Tarefa Básica

1-

a) $4! = 4.3.2.1 = 24$

b) $5! - 6! = 5.4.3.2.1 - 6.5$

$120 - 6.120$

$120 - 720 = -600$

c) $\frac{9!}{6!} = \frac{9.8.7.6}{6!} = 504$

d) $\frac{98!}{100!} = \frac{98!}{100.99.98} = \frac{1}{9.900}$

2-

$\frac{1}{N!} - \frac{N}{(N+1)!}$

$\frac{1}{n!} - \frac{n}{(n+1).n} \Rightarrow \frac{(n+1)n! - n!.(-n)}{n!(n+1.n!)} \Rightarrow \frac{n!.(n+1)\ 1+1.(n)}{n!.(n+1)n!}$

$\frac{n!.1}{n!(n+1).n!} \Rightarrow \frac{n!}{n!.(n+1)!} = \frac{1\ A.}{(n+1)}$

S T Q Q S S D

__/__/__

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

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

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

$\frac{n.(n-1)!}{(n-1)!} - \frac{1}{1} \Rightarrow \boxed{n-1}$ $\boxed{A}$

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

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

$\frac{n+2}{n-1} = 4$

$n+2 = 4(n-1)$
$n+2 = 4n-4$
$2+4 = 4n-n$
$3n = 6$
$n = \frac{6}{3}$
$n = 2 \rightarrow$ PAR

$\boxed{A}$

resulta em um número inteiro

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

$\frac{(n+1)! - n!}{(n+1)} = \frac{7}{n+1}$	$1 = \frac{8}{n+1}$
$\frac{1 - n!}{1} \cdot \frac{(n+1)!}{n+1} = \frac{7}{1}$	$8 = 1(n+1)$
$\frac{1 - n!}{1} \cdot \frac{(n+1)n!}{n+1} = \frac{7}{1}$	$8 = n+1$
$\frac{1 - n!}{1} \cdot \frac{(n+1)n!}{n+1} = \frac{7}{1}$	$n = 7$
$1 - 1 = 7$	
$n+1 \quad n+1$	

D

6- $(n-1)![(n+1)! - n!]$ é

$(n-1)![(n+1)! - n!] =$

$(n-1)![(n+1).n.(n-1)! - n.(n-1)!]$

$(n-1)![(n-1)![(n+1).n - n]]$

$(n-1)![(n-1)![(n).(n+1-1)]]$

$(n-1)![(n-1)![(n).(n)]]$

$(n-1)![(n-1).(n^2)]$

$(n-1)!(n-1).(n.n) =$

$(n(n-1).(n.(n-1)?n!^2)$

__/__/__

7.

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

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

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

$$\frac{(n+1)}{(n+n).n - n} = \frac{6}{25} \Rightarrow \frac{n-1}{n^2+n-n} = \frac{6}{25} \Rightarrow \frac{n-1}{n^2} = \frac{6}{25}$$

$6n^2 = 25(n+1)$

$6n^2 = 25n + 25$

$6n^2 - 25n - 25 = 0$

$\Delta = (-25)^2 - 4.6.(-25)$

$\Delta = 625 + 600$

$\Delta = \sqrt{1125} = 35$

$\frac{25 \div 35}{12}$

$n^2 = \frac{25-35}{12} = \frac{-10}{12}$ não satisfaz

$n' = \frac{25+35}{12} = \frac{60}{12} = 5$

C

8- $21! - 221$

$(21.20.19.18.17.16.15.14.13.12.11.10.9.8.7.6!) - 221$

420 342 272 210 156 110 504 720

$51090942171709440000 - 221 =$

51090942171709439779

D

dezenas