DOM SEG TER QUA QUI SEX SÁB

Tarefa Básica

1- a) $4! = 4.3.2.1 = 24$ //

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

$5!(1-6)$

$120 \cdot -5 = -600$ //

c) $\frac{9!}{6!} \rightarrow \frac{9.8.7.6!}{6!} \rightarrow 9.8.7 = 504$ //

d) $\frac{98!}{100!} \rightarrow \frac{98!}{100.99.98!} \rightarrow \frac{1}{100.99} = \frac{1}{9900}$ //

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

(A)

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

$\frac{n.(n-1)! - (n-1)!}{(n-1)!} \rightarrow \frac{n-1}{1} = n-1$ (A) //

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

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

$-3n = -6$

$n = 2$ (A)

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

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

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

$(n-1)!\,(n+1-1)\,n! \rightarrow (n-1)!\,n\,.\,n!$

$[(n-1)!\,.\,n]\,.\,n! = n!\,.\,n! \rightarrow n!^2$ (d)

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

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

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

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

$\Delta = 625+600$ $x = \frac{25 \pm 35}{12}$ $\begin{cases} \rightarrow x' = 5 \\ \rightarrow x'' = -10 \end{cases}$

$\Delta = 1225$

(c) $n = 5$