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Fatorial

01 a) $4! = 4.3.2.1 = 24$

01 b) $5! - 6! = 5! - 6.5!$ $\quad 5(-64)$ $\quad 120(-5)$

$5! = 5.4.3.2.1 = 120$ $\quad 120.-5 = -600$.

01 c) $9!/6! = \frac{9!}{6!}$ $\quad 6.5.4.3.2.1 = 720$ $\quad 9.8.7.6.5.4.3.2.1 = 362,880$ $\quad \frac{362,880}{720} = 504$

02) $\frac{1}{N!} - \frac{N}{(N+1)}$ $\quad \frac{1}{N!} - \frac{N}{-(N+1)(N)!}$ $\quad \frac{[(N+1)+(-N)]}{(N+1)!}$ $\quad \frac{1}{(N+1)}$ resposta letra a

03) $\frac{(N!)^2 - (N-1)!.N!}{(N-1)!.N!}$ $\quad \frac{N!.N! - (N-1)!.N!}{(N-1)!.N!}$ $\quad \frac{N! - (N-1)}{(N-1)!}$ $\quad \frac{N(N-1)! - (N-1)!}{(N-1)}$

$N-1$ resposta letra a

04) $\frac{(N+2)!\,(N-2)!}{(N+1)!\,(N-1)!} = 4$ $\quad \frac{N^2 - 2N + 2N - 4 = 4}{N^2 - 1N + 1N - 1 = N}$ $\quad 2N^2 = 8N$ $\quad N^2 = \frac{8}{2} = 4$ $\quad N = 2$ resposta par letra A

05) $\frac{(N+1)! - n!}{(n+1)!} = \frac{7}{n+1}$ $\quad \frac{(N+1).n.(n-1)! - n.[n-1]!}{(n+1)!} = \frac{7}{(n+1)}$

$\frac{(n-1)!\,[N(N+1)-N]}{(n+1)!} = \frac{7}{(n+1)}$ $\quad \frac{(n+1)!\,(n^2).7}{(n+1)! - N+1}$ $\quad \frac{N^2 - 7}{1}$ $\quad N(N-7) = 0$

$N = 7$

resposta

letra D

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

$(n-1)!(n!n) = [n(n-1)!][n!] = (n!)(n!) = (n!^2)$ resposta letra D

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

$\frac{(n-1)![n+1]}{n(n-1)![n+1]-1} = \frac{6}{25}$ $\frac{n+1}{n^2} = \frac{6}{25}$ $6n^2 = 25(n+1)$ $6n^2 = 25+25$

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

$\Delta = (-25)^2 - 4.6.(-25)$ $\Delta = 625+600$ $\Delta = 1125$

$x = \frac{25 \pm \sqrt{1125}}{2.6}$ $x = \frac{25 \pm 35}{12}$ $n1 = \frac{60}{12} = 5$ $n2 = \frac{-10}{12}$

$n = 5$ resposta letra c

08) $21! - 221 =$

$21!$ 5 fatores 5, 10, 15, 20. $21!$ = quatro zeros.

$\frac{0000}{221} = 9779$

7 algarismos resposta letra D