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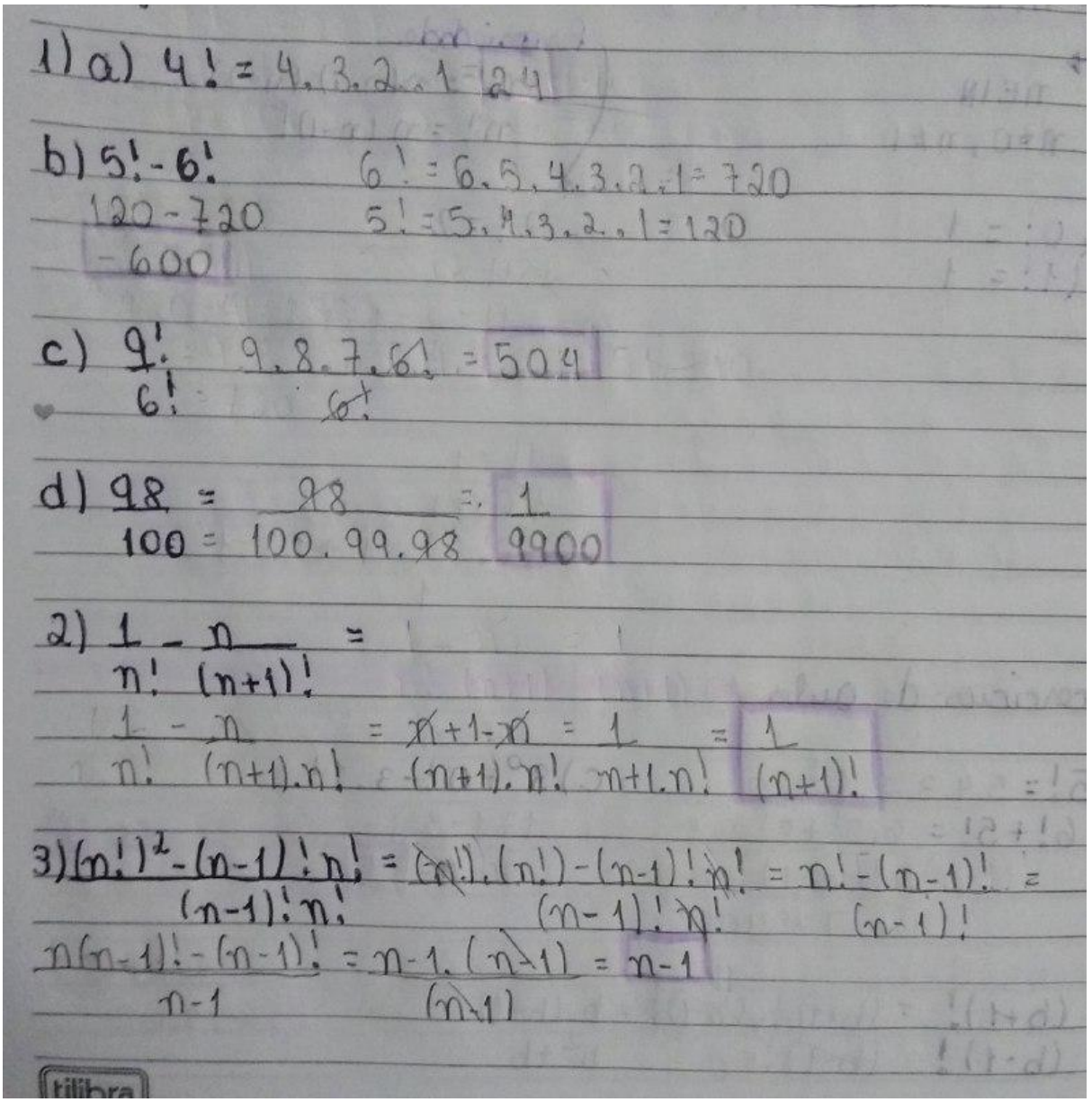
LISTA - FATORIAL DE NÚMEROS NATURAIS

EXERCÍCIOS:



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

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

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

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

$n+2 = 4n+4$

$4n-n = 2+4$

$3n = 6$

$n = \frac{3}{6} = n = 2$ A) pon

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

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

6) $n \in N, n \geq 1$

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

$(n-1)!\cdot(n!\cdot n) = [n(n-1)!][n!] = (n!)\cdot(n!) = (n!)^2$

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

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

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

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

$25n + 25n - 6n^2 = 0 \cdot (-1)$

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

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

$\Delta = 625 + 600$

$\Delta = 1225$

$\Delta = 35$

$x = \frac{-(-25) + 35}{12} = \frac{60}{12} = 5$

$x = \frac{25 - 35}{12} = \frac{-10 \div 2}{12 \div 2} = \frac{5}{6}$

8) $21! - 22!$

$21 = 51090942171709440000$

$22 = 1124000727877607680000$

1 2 3 4 5 6 7 8 9 10

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(7)