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Turma: **CTII 348**

Prontuário: **CB1990209**

Disciplina: **Matemática**

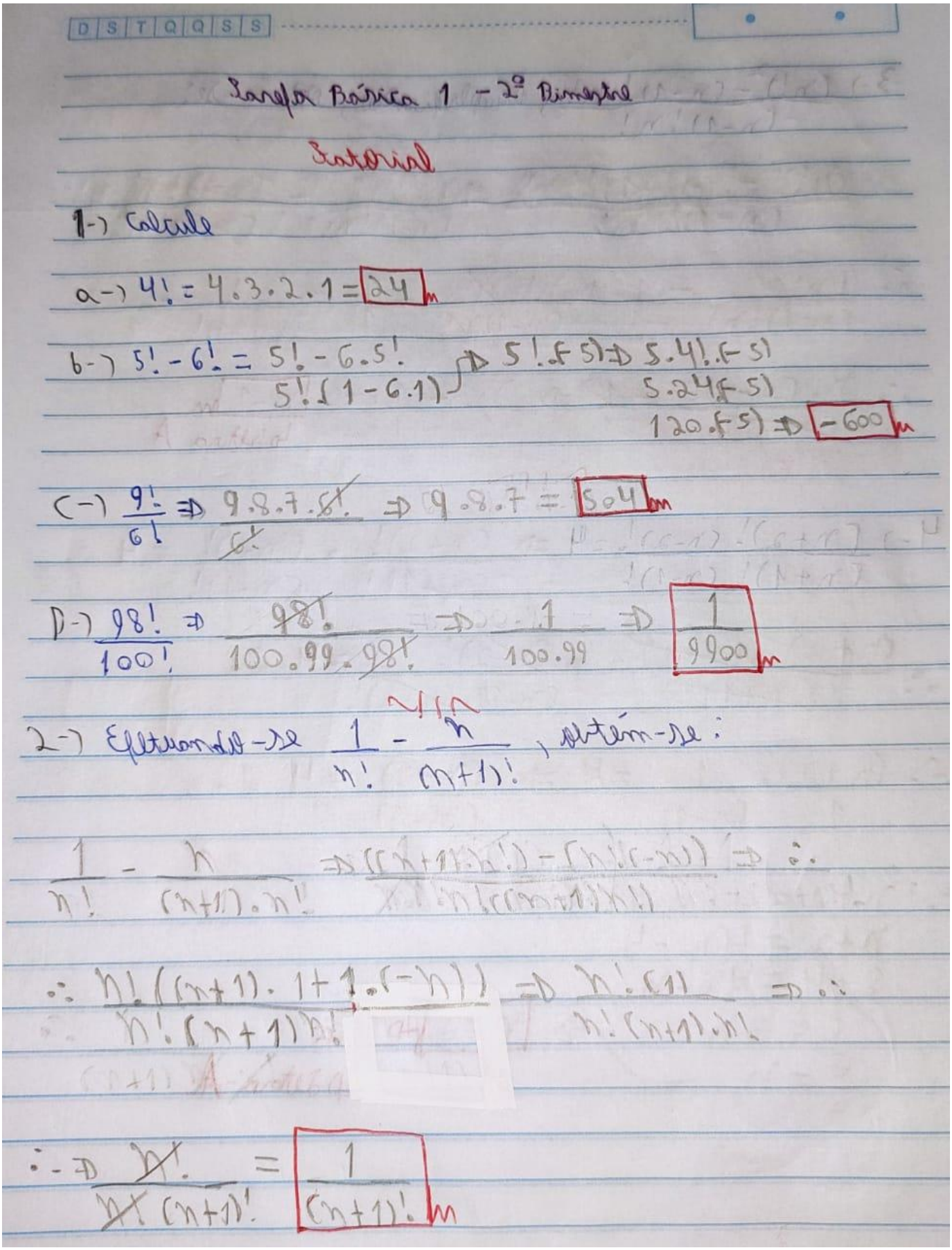
IFSP - Câmpus Cubatão

Tarefa Básica 1

Fatorial de um Número Natural

(Fotos nas páginas seguintes)

Exercícios 1 e 2:



Lista Básica 1 - 2º Bimestre

Fatorial

1-) Calcule

a-) $4! = 4.3.2.1 = \boxed{24}$ m

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

$5!(1 - 6.1) \Rightarrow 5!.(-5) \Rightarrow 5.4!.(-5)$

$5.24.(-5)$

$120.(-5) \Rightarrow \boxed{-600}$ m

c-) $\frac{9!}{6!} \Rightarrow \frac{9.8.7.6!}{6!} \Rightarrow 9.8.7 = \boxed{504}$ m

d-) $\frac{98!}{100!} \Rightarrow \frac{98!}{100.99.98!} \Rightarrow \frac{1}{100.99} \Rightarrow \boxed{\frac{1}{9900}}$ m

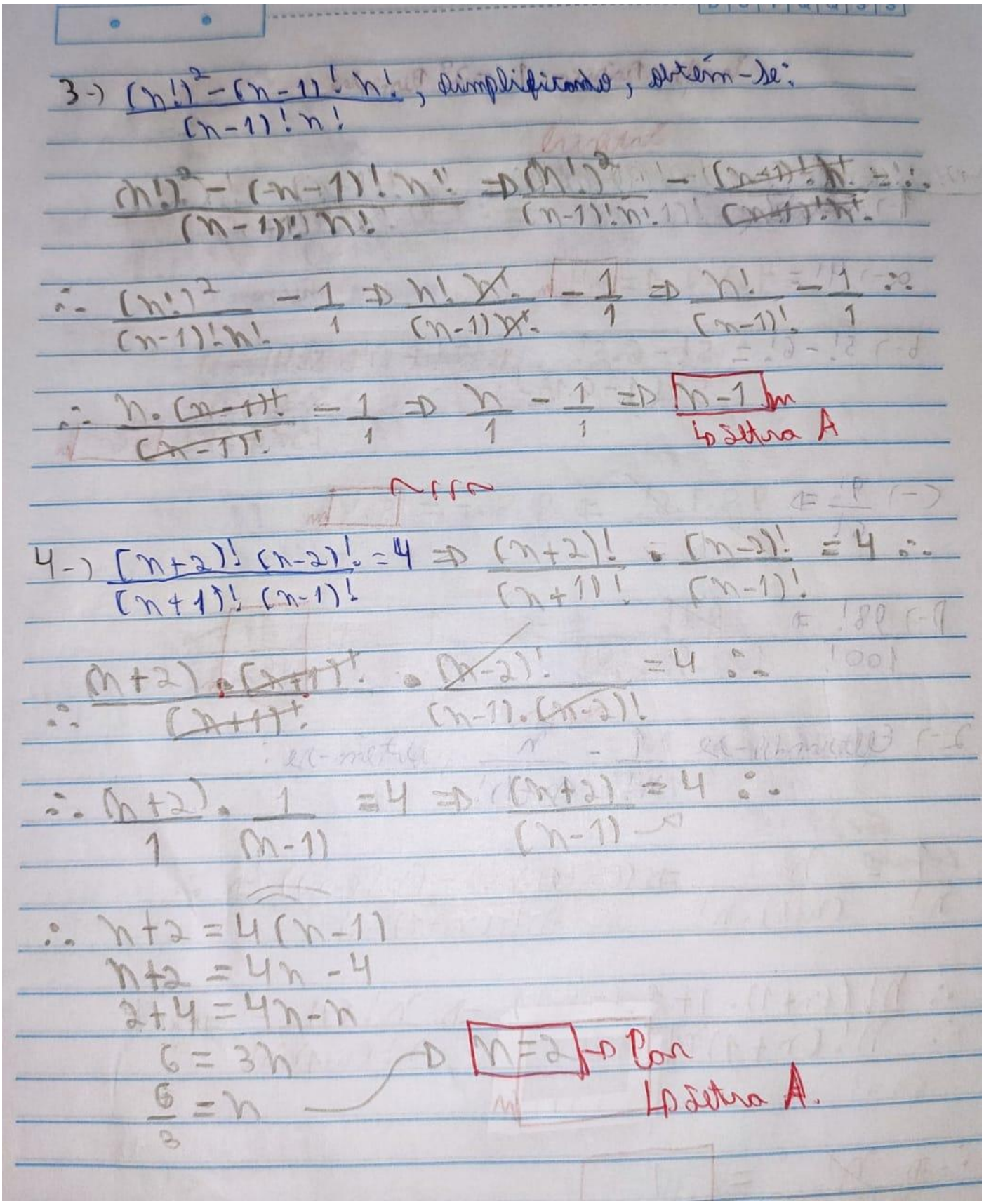
2-) Efetuando-se $\frac{1}{n!} - \frac{n}{(n+1)!}$, obtém-se:

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

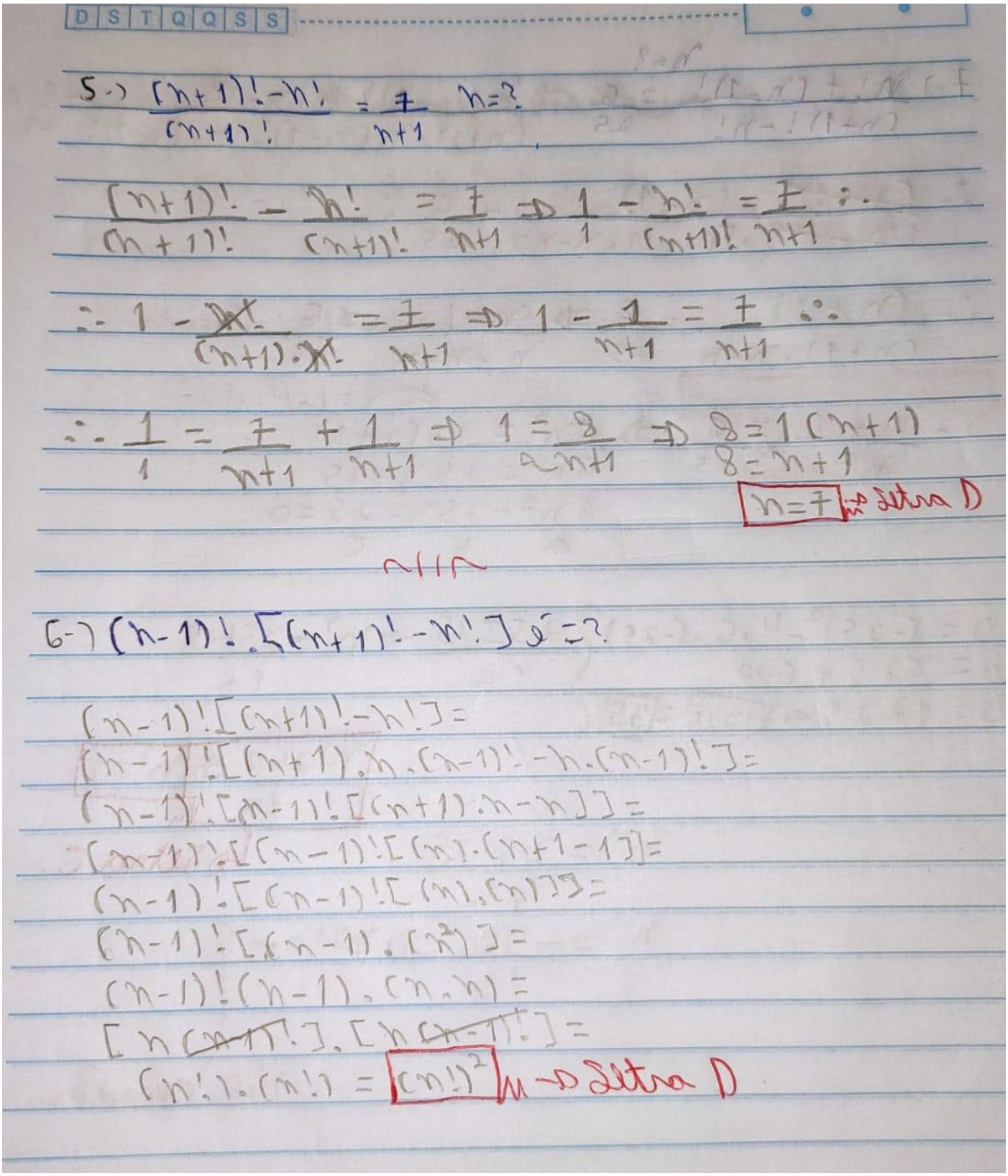
$\therefore \frac{n!.((n+1).1 + 1.(-n))}{n!.(n+1)n!} \Rightarrow \frac{n!.(1)}{n!.(n+1).n!} \Rightarrow \therefore$

$\therefore \Rightarrow \frac{n!}{n!(n+1)!} = \boxed{\frac{1}{(n+1)!}}$ m

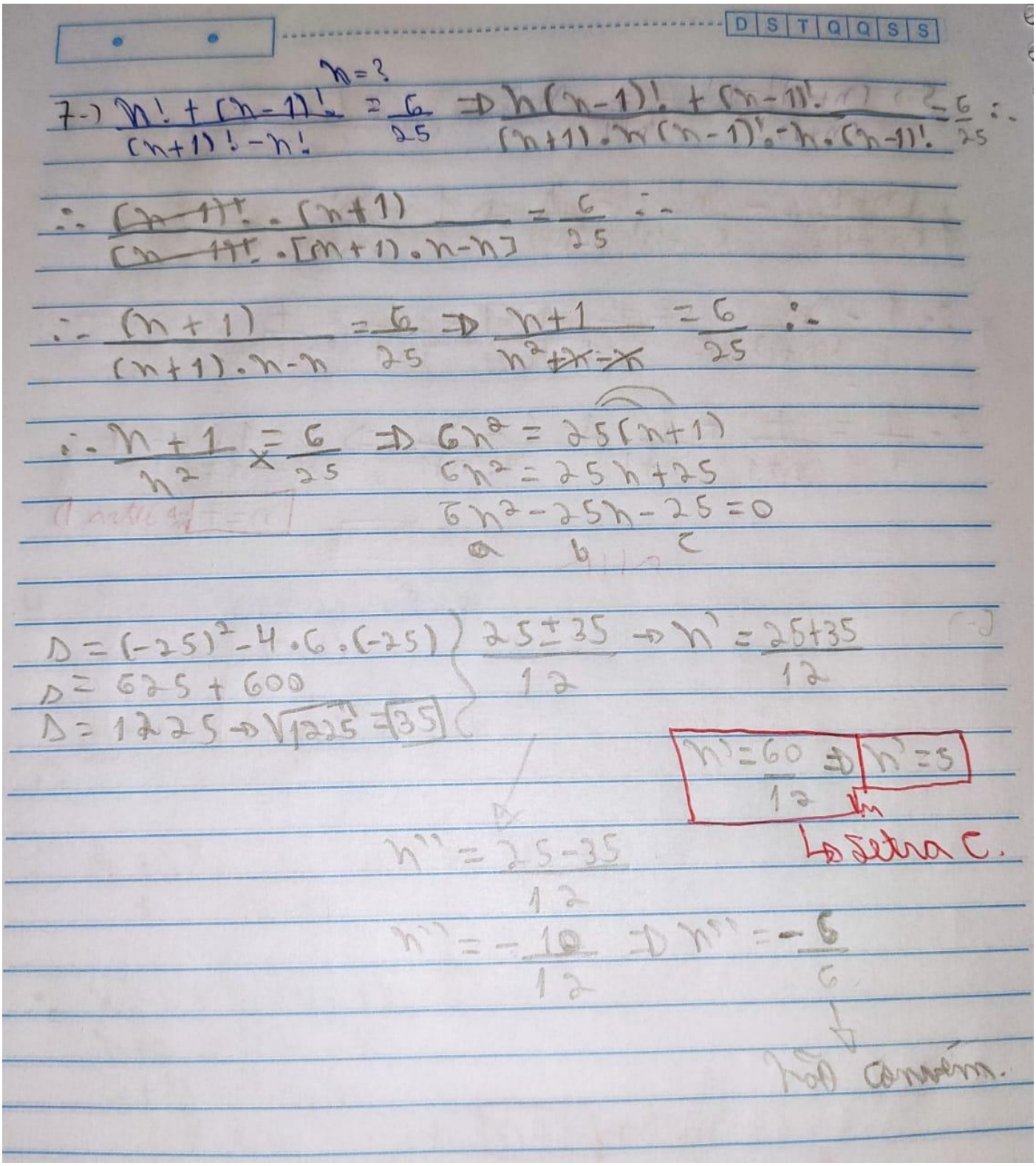
Exercícios 3 e 4:



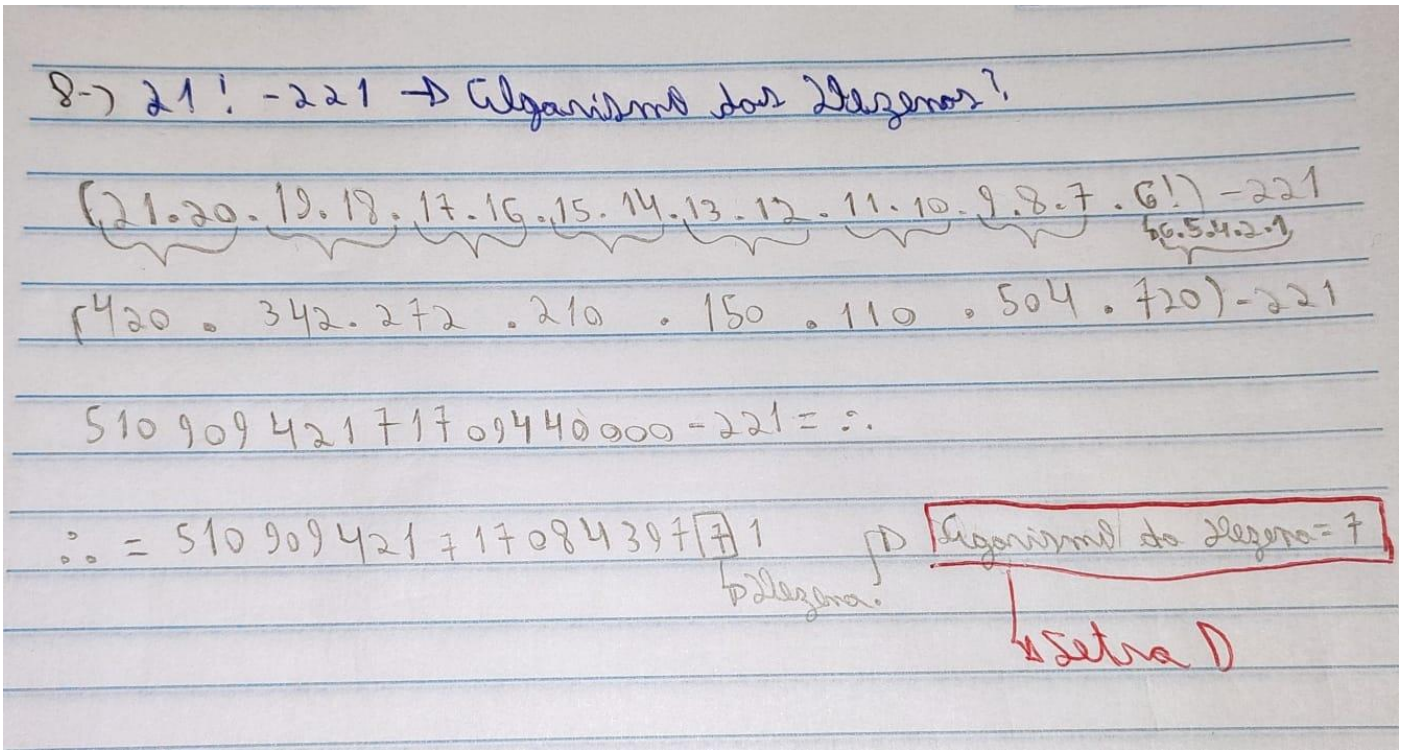
Exercícios 5 e 6:



Exercício 7:


n = ?
7-) n! + (n-1)! / (n+1)! - n! = 6/25 ⇒ n(n-1)! + (n-1)! / (n+1)·n(n-1)! - n·(n-1)! = 6/25 ∴
∴ (n-1)! · (n+1) / (n-1)! · [(n+1)·n - n] = 6/25 ∴
∴ (n+1) / (n+1)·n - n = 6/25 ⇒ n+1 / n² = 6/25 ∴
∴ n+1 / n² = 6/25 ⇒ 6n² = 25(n+1)
6n² = 25n + 25
6n² - 25n - 25 = 0
a b c
Δ = (-25)² - 4·6·(-25)
Δ = 625 + 600
Δ = 1225 ⇒ √1225 = 35
25 ± 35 / 12 ⇒ n' = 25+35 / 12
n' = 60 / 12 ⇒ n' = 5
Letra C.
n'' = 25 - 35 / 12
n'' = -10 / 12 ⇒ n'' = -6
Não convém.

Exercício 8:


8-) 21! - 221 → Algarismo das dezenas?
(21.20.19.18.17.16.15.14.13.12.11.10.9.8.7.6!) - 221
6.5.4.2.1
(420 . 342 . 272 . 210 . 150 . 110 . 504 . 720) - 221
510909421717094400000 - 221 = ∴
∴ = 5109094217170843977 1
7 dezena.
Algarismo da dezena = 7
Letra D