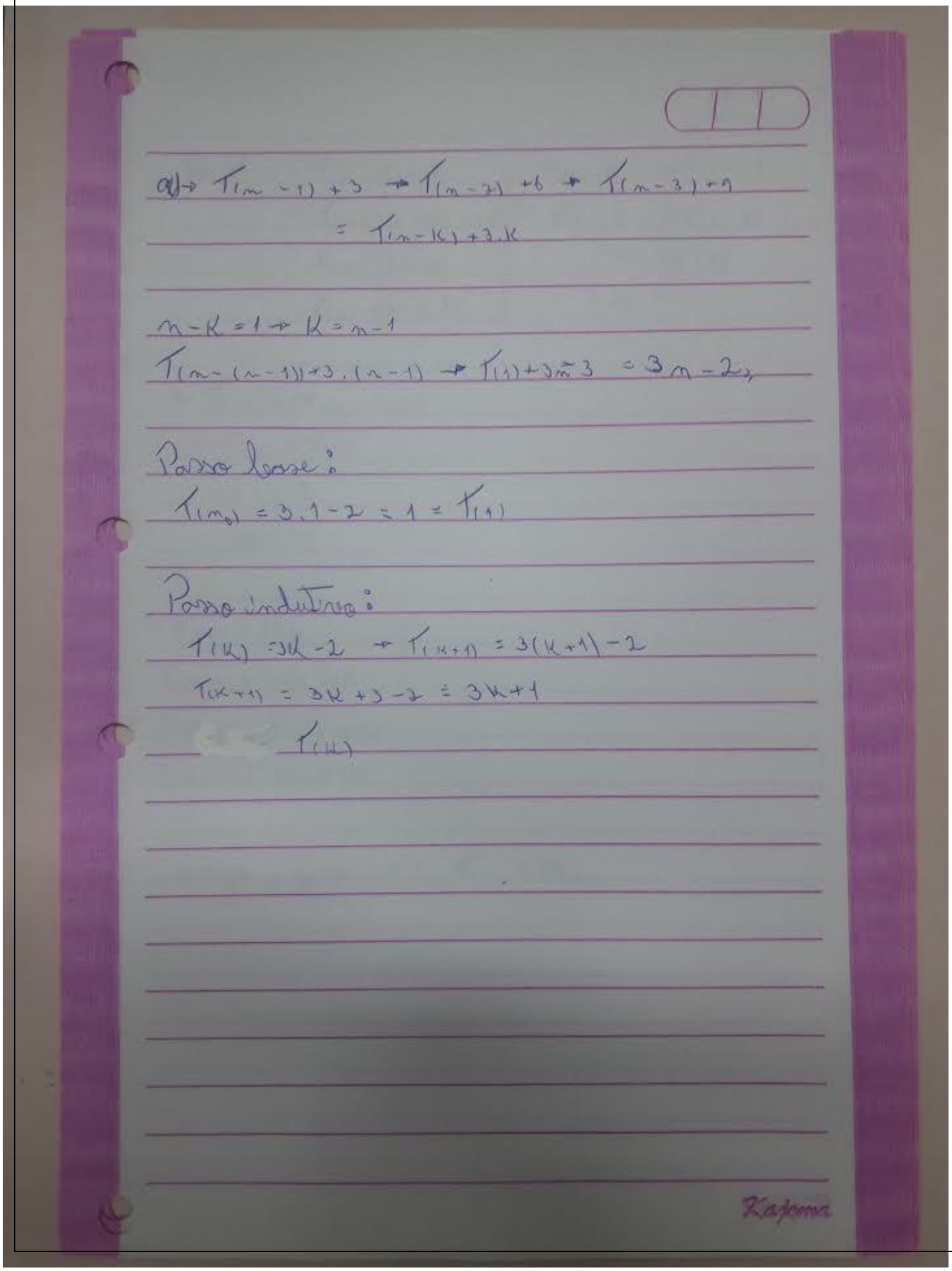
INSTITUTO FEDERAL
DE EDUCAÇÃO, CIÊNCIA E TECNOLOGIA
Fluminense

MINISTÉRIO DA
EDUCAÇÃO

BRASIL
GOVERNO FEDERAL

Aluno: Mateus Terra Tavares Ramos **Curso:** Engenharia de Computação **Data:** 10/02/23

Disciplina: Projeto e análise de algoritmos **Profª:** Philippe Leal



b) $T(n) = T(n-1) + 10$

$= T(n-2) + 10 + 10$

$T(n-3) + 30$

$T(n-k) + k \cdot 10$

$\rightarrow n - k = 1 \rightarrow k = n-1$

$\hookrightarrow T(n) = T(1) + 10n - 10$

$= 10n + 10 - 10$

$= 10n$

$\hookrightarrow T(n) = 10n, \quad n \geq 1$

$\hookrightarrow T(n_0) = T(1)$

$10.1 = 10$

$10 = 10$

$\hookrightarrow T(k) = 10k$

$T(k+1) = 10k + 10$

$T(k+1) = T(k) + 10$

$T(k+1) = 10k + 10$

Logo, para $n \geq 1$, $T(n) = 10n$

Katrin

c) $\Gamma(n) = n \cdot \Gamma(n-1)$

$= n \cdot (n-1) \cdot \Gamma(n-2)$

$= n \cdot (n-1) \cdot (n-2) \cdot \Gamma(n-3)$

$= n \cdot (n-1) \cdot (n-2) \cdot (n-3) \cdot \Gamma(n-3)$

$\therefore \Gamma(n) = n!$

$\therefore \Gamma(n) = n!, \quad n \geq 1$

$\therefore \Gamma(n_0) = \Gamma(1) \rightarrow 1! = 1 \rightarrow 1 = 1$

$\therefore \Gamma(k) = k!$

$\Gamma(k+1) = (k+1)!$

$= k! \cdot (k+1)$

$= (k+1)!$

Logo $\Gamma(n) = n!, \quad n \geq 1$