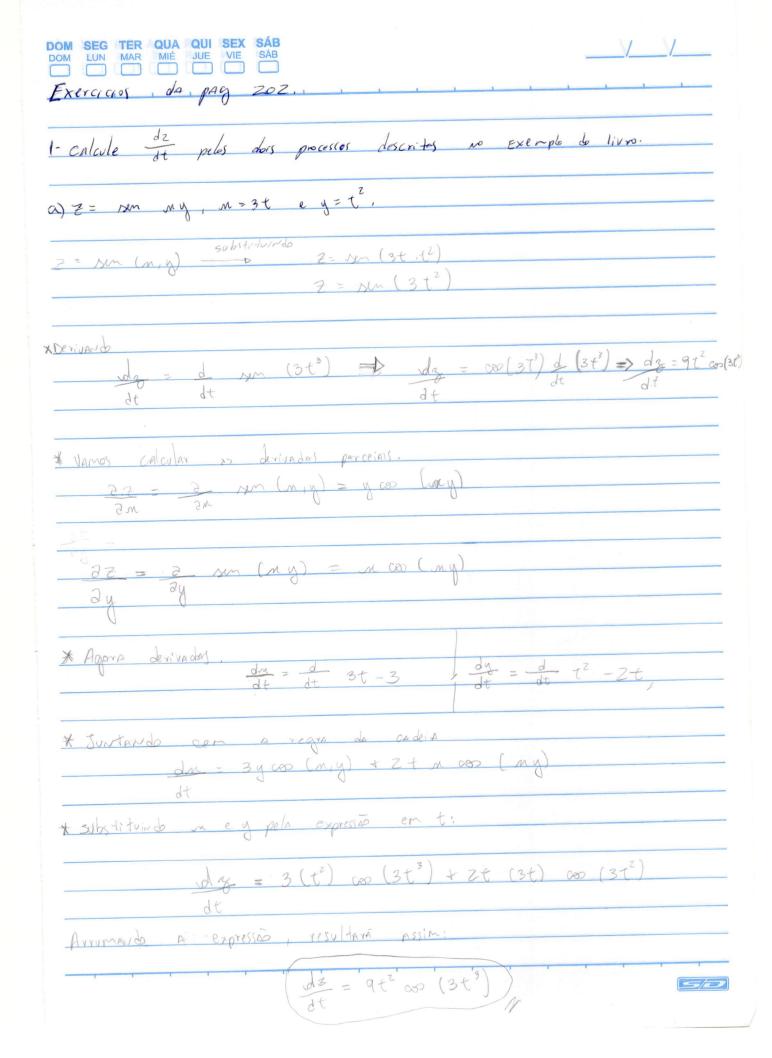
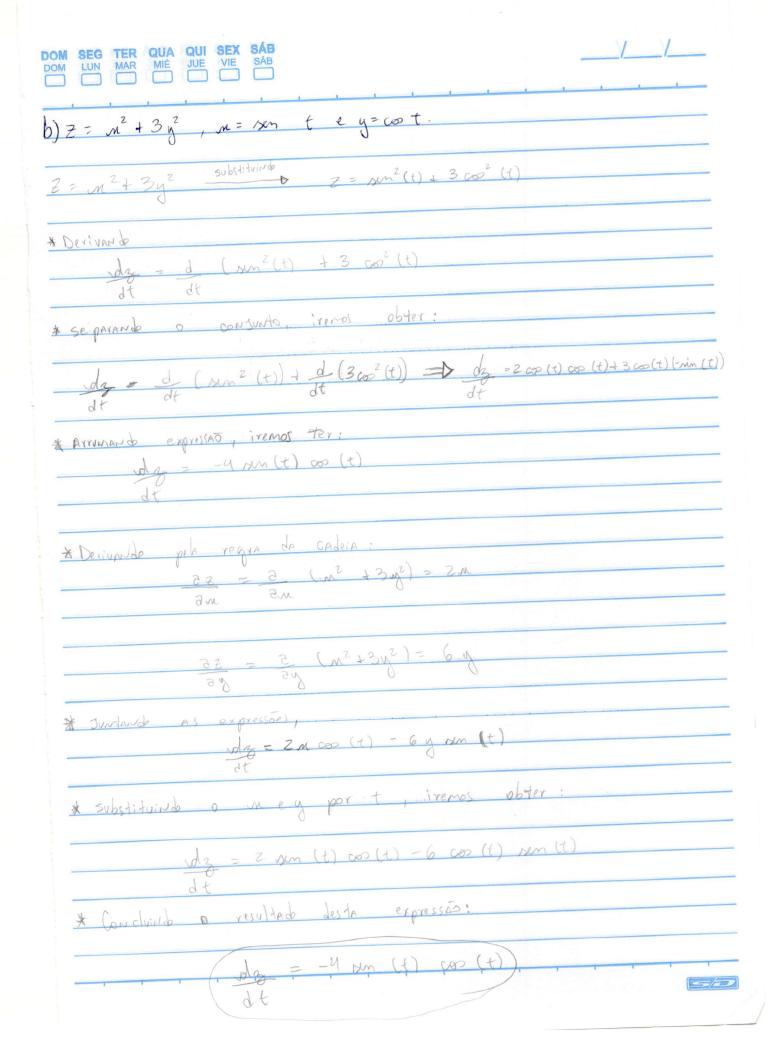
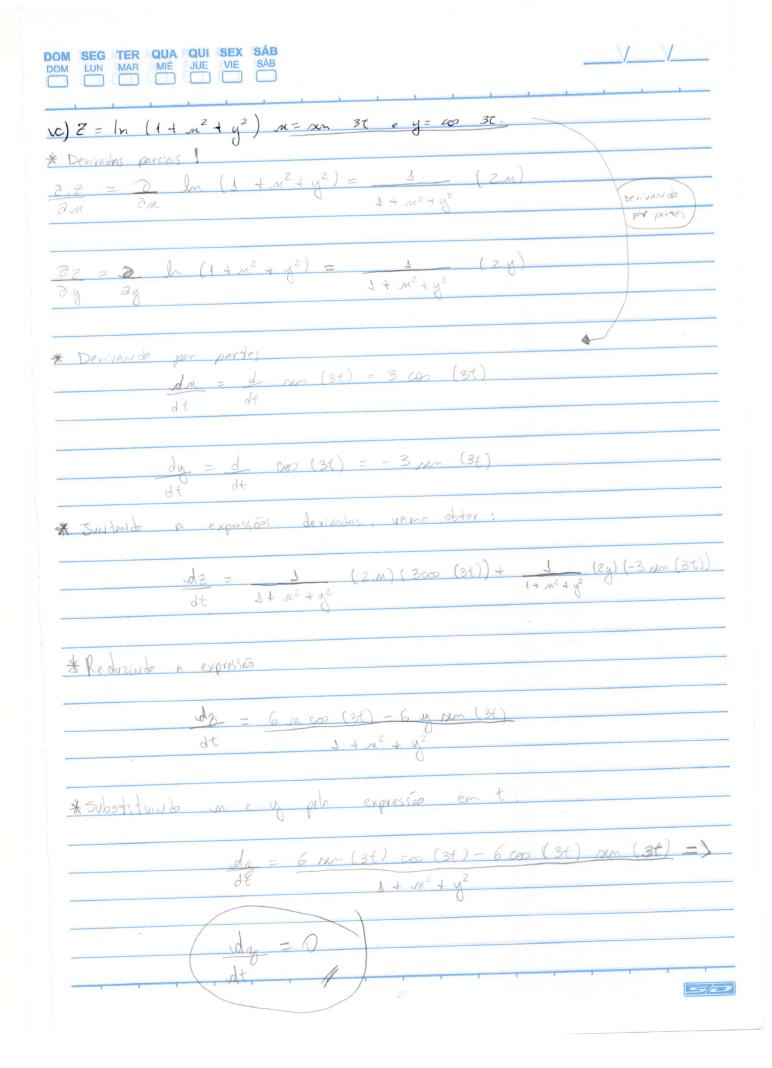
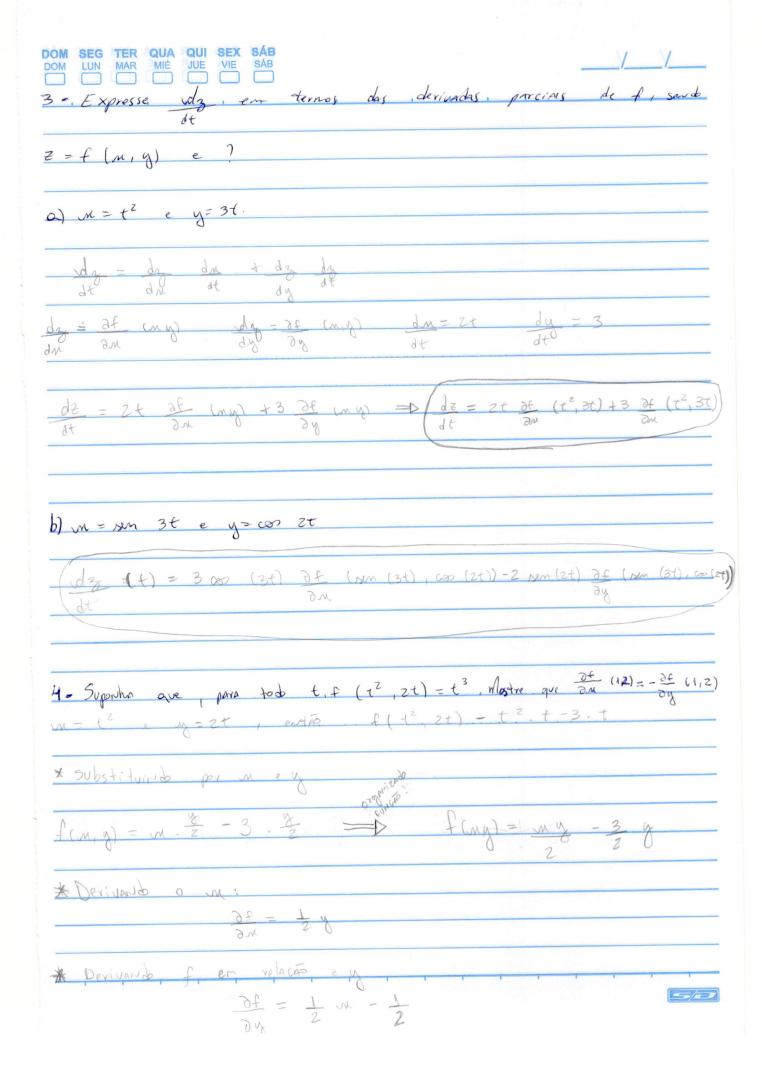
DOM SEG TER QUA QUI SEX SÁB DOM LUN MAR MIÉ JUE VIE SÁB		(9)	//
Nome: RAFAELLE ARRUDA Professor: Nevi	Disciplina	Calculo I	
List	ñ 7		
Exemple 10, explicando	o entendinente de	s resolución.	
$f(x,y) = f(x,y) = e^{-x}$ $f(x,y) = e^{-x}$	que X=Y cos B avel dada. Verifique	e g=r	sen 0, gado
$\frac{\partial f}{\partial y}(x,y) = \frac{\cos \theta}{\sqrt{30}} \frac{\partial f}{\partial 0}$	$(x,0)$ + sen $0$ $\frac{\partial}{\partial}$	$\frac{f}{r}$ $(r, \emptyset)$ .	
mudando o contexto	, separand fix,	y) . Roderos	fazer dessa
maneira, substituindo. W=f(m,y), mostrardo	que af	for cog 4.	fy sin Ø e
1 2W = - fu sen 8 +	fy con Ø.		
* Note que for = cos	91 July - 10)	Sh e ti	= 18W (0) SM + CD (0) 5
Assim concluinos.			









\* Vamos calcular os valores das derivadas parciais no porto (1,2)

 $\frac{\partial f}{\partial n} \left( \frac{1}{2} \right) = \frac{1}{2} \cdot 2 \rightarrow \underbrace{\partial f}_{\partial n} \left( \frac{1}{2} \right) = 1$ 

\* VAMO ver con fica en relação a y.

$$\frac{\partial f}{\partial y} = \frac{1}{Z} x - \frac{3}{Z}$$

 $\frac{3f}{2}(1/2) = \frac{1}{2} \cdot \frac{1}{2} = -1$ 

$$\frac{\partial f}{\partial y} (1, z) = -\frac{\partial f}{\partial y} (1, z)$$

lag zuz

Questas 5.

$$\frac{\partial^2 f}{\partial x^2} + \frac{\partial^2 f}{\partial y^2} = \frac{\partial}{\partial x} \left[ \frac{\partial f}{\partial x} \right] + \frac{\partial}{\partial y} \left[ \frac{\partial f}{\partial y} \right]$$

\* Com enunciado ob temos

$$\frac{\partial^2 t}{\partial m^2} + \frac{\partial^2 f}{\partial y^2} = \frac{\partial}{\partial m} \left[ \frac{\partial y}{\partial y} \right] + \frac{\partial}{\partial y} \left[ -\frac{\partial q}{\partial m} \right] = \frac{\partial^2 q}{\partial m \partial y} - \frac{\partial^2 q}{\partial y \partial m}$$

\* Agora, invocamos a solene distinición de uma función chasse c², tipo
"Se of for de classe c² , entro a orden das derivadas não afeita

$$\frac{\partial^2 f}{\partial x^2} + \frac{\partial^2 f}{\partial y^2} = 0$$

DOM SEG TER QUA QUI SEX SÁE DOM LUN MAR MIÉ JUE VIE SÁB

\_\_\_\_/

J-Calcule todas as derivadas parciais de zº orden.

(c) Z = In (1 + m2 + g2)

 $\frac{\partial^{2} z}{\partial m^{2}} = \frac{2 + 2y^{2} - 2m^{2}}{(1 + m^{2} + y^{2})^{2}}, \quad \frac{\partial^{2} z}{\partial y^{2}} = \frac{2 + 2m^{2} - 2y^{2}}{(1 + m^{2} + y^{2})^{2}} = \frac{2 + 2m^{2} - 2y^{2}}{(1 + m^{2} + y^{2})^{2}}$ 

 $\frac{\partial^2 Z}{\partial x} = \frac{\partial^2 Z}{\partial y} = \frac{-4my}{(3+m^2+y^2)^2}$ 

b) z = e m z - y z

 $\frac{\partial^2 z}{\partial x^2} = 2e^{x^2 - y^2} \left(1 + 2x^2\right), \quad \frac{\partial^2 z}{\partial y^2} = 2e^{x^2 - y^2} \left(2y^2 - 1\right) = 2e^{x^2 - y^2}$ 

 $\frac{\partial^2 z}{\partial m \partial y} = \frac{\partial^2 z}{\partial y \partial m} = -4m y e^{m^2 - y^2}.$ 

a)  $f(m, y) = m^3 y^2$ 

 $\frac{\partial^2 f}{\partial m^2} = Z m y^2 , \quad \frac{\partial^2 f}{\partial y^2} = Z m^3 + \frac{\partial^2 f}{\partial m} = \frac{\partial^2 f}{\partial y^2} = 6 m^2 y.$ 

(d) g(m,y) = 4 m3 y + y3

 $\frac{\partial^2 q}{\partial m^2} = 24 m \eta^2, \quad \frac{\partial^2 q}{\partial y^2} = 48 m^3 \eta^2 \quad e \quad \frac{\partial^2 q}{\partial m \partial y} = \frac{\partial^2 q}{\partial y \partial m} = 48 m^2 \eta^3.$ 

