DERIVADAS

QUESTÃO A

$y = 20$

$y' = (20)'$

$= 0$

QUESTÃO B

$y = x^3$

$y' = (x^3)'$

$= 3x^{3-1}$

$= 3x^2$

QUESTÃO F

$y = x^2 - 6x + 8$

$y' = (x^2 - 6x + 8)'$

$= (x^2)' - (6x)' + (8)'$

$= 2x^{2-1} - 6(x)' + 0$

$= 2x - 6(1x^{1-1})$

$= 2x - 6(x^0)$

$= 2x - 6(1)$

$= 2x - 6$

5

QUESTÃO C

$y = 4x^2$

$y' = (4x^2)'$
$= 4(x^2)'$
$= 4(2x^{2-1})$
$= 8x$

QUESTÃO D

$y = 3x^3 + 20$

$y' = (3x^3 + 20)'$
$= (3x^3)' + (20)'$
$= 3(x^3)' + 0$
$= 3(3x^{3-1})$
$= 9x^2$

QUESTÃO E

$y = 10x + 5$

$y' = (10x + 5)'$
$= (10x)' + (5)'$
$= 10(x)' + 0$
$= 10(1x^{1-1})$
$= 10(x^0)$
$= 10(1)$
$= 10$

QUESTÃO G

$y = x^3 - 10x^2 + 30$

$y' = (x^3 - 10x^2 + 30)'$
$= (x^3)' - (10x^2)' + (30)'$
$= 3x^{3-1} - 10(x^2)' + 0$
$= 3x^2 - 10(2x^{2-1})$
$= 3x^2 - 20x$

QUESTÃO H

$y = \frac{4}{3}x^3 - \frac{2}{5}x^2 + 10x + 1$

$y' = \left(\frac{4}{3}x^3 - \frac{2}{5}x^2 + 10x + 1\right)'$
$= \left(\frac{4}{3}x^3\right)' - \left(\frac{2}{5}x^2\right)' + (10x)' + (1)'$
$= \frac{4}{3}(x^3)' - \frac{2}{5}(x^2)' + 10(x)' + 0$
$= \frac{4}{3}(3x^{3-1}) - \frac{2}{5}(2x^{2-1}) + 10(1x^{1-1})$
$= 4x^2 - \frac{4}{5}x + 10(x^0)$
$= 4x^2 - \frac{4}{5}x + 10(1)$
$= 4x^2 - \frac{4}{5}x + 10$

QUESTÃO I

$$y = \frac{x^4 - 6x^2 + 20}{10} \qquad \left(\frac{u}{v}\right)' = \frac{vu' - uv'}{v^2}$$

$$y' = \left(\frac{x^4 - 6x^2 + 20}{10}\right)'$$

$$= \frac{10(x^4 - 6x^2 + 20)' - (x^4 - 6x^2 + 20)(10)'}{(10)^2}$$

$$= \frac{10[(x^4)' - (6x^2)' + (20)'] - (x^4 - 6x^2 + 20)(0)}{100}$$

$$= \frac{10[4x^{4-1} - 6(x^2)' + 0] - 0}{100}$$

$$= \frac{\cancel{10}[4x^3 - 6(2x^{2-1})]}{\cancel{100}\ 10}$$

$$= \frac{4x^3 - 12x}{10}$$

QUESTÃO J

$$y = 12x^{0,5}$$

$$y' = (12x^{0,5})'$$
$$= 12(x^{0,5})'$$
$$= 12(0,5x^{0,5-1})$$
$$= 6x^{-0,5}$$

QUESTÃO K

$$y = e^{10-2x}$$

$$y = e^u \Rightarrow y' = e^u \cdot u'$$

$$y' = (e^{10-2x})'$$
$$= e^{10-2x}(10-2x)'$$
$$= e^{10-2x}[(10)' - (2x)']$$
$$= e^{10-2x}[0 - 2(x)']$$

17

$y' = e^{10-2x}[-2(1x^{1-1})]$
$= e^{10-2x}[-2(x^0)]$
$= e^{10-2x}[-2(1)]$
$= -2e^{10-2x}$

QUESTÃO L

$y = e^{2x}$

$y' = (e^{2x})'$ $\quad y = e^u \Rightarrow y' = e^u \cdot u'$
$= e^{2x}(2x)'$
$= e^{2x}[2(x)']$
$= e^{2x}[2(1x^{1-1})]$
$= e^{2x}[2(x^0)]$
$= e^{2x}[2(1)]$
$= 2e^{2x}$

QUESTÃO M

$y = 3e^{2x+1}$

$y' = (3e^{2x+1})'$ $\quad y = e^u \Rightarrow y' = e^u \cdot u'$
$= 3(e^{2x+1})'$
$= 3e^{2x+1}(2x+1)'$
$= 3e^{2x+1}[(2x)' + (1)']$
$= 3e^{2x+1}[2(x)' + 0]$
$= 3e^{2x+1}[2(1x^{1-1})]$
$= 3e^{2x+1}[2(x^0)]$
$= 3e^{2x+1}[2(1)]$
$= 6e^{2x+1}$

QUESTÃO N

$y = 5e^x$

$y' = (5e^x)'$
$= 5(e^x)'$
$= 5e^x$

$y = e^x \Rightarrow y' = e^x$

QUESTÃO O

$y = 5e^x + 10\ln x - 8$

$y' = (5e^x + 10\ln x - 8)'$
$= (5e^x)' + (10\ln x)' - (8)'$
$= 5(e^x)' + 10(\ln x)' - 0$
$= 5e^x + 10\left(\frac{1}{x}\right)$

$= 5e^x + \frac{10}{x}$

QUESTÃO P

$y = 3e^x$

$y' = (3e^x)'$
$= 3(e^x)'$
$= 3e^x$

$y = e^x \Rightarrow y' = e^x$

QUESTÃO Q

$y = 5\ln x$

$y' = (5\ln x)'$
$= 5(\ln x)'$
$= 5\left(\frac{1}{x}\right)$ $\Rightarrow y' = \frac{5}{x}$

$y = \ln x \Rightarrow y' = \frac{1}{x}$

(9)

QUESTÃO R

$y = \ln x$

$y' = (\ln x)'$

$= \frac{1}{x}$

$y = \ln x \Rightarrow y' = \frac{1}{x}$

QUESTÃO S

$y = 2 \ln x$

$y' = (2 \ln x)'$

$= 2(\ln x)'$

$= 2\left(\frac{1}{x}\right)$

$= \frac{2}{x}$

$y = \ln x \Rightarrow y' = \frac{1}{x}$

QUESTÃO T

$y = 10^x$

$y' = (10^x)'$

$= 10^x \ln 10$

$y = a^x \Rightarrow y' = a^x \ln a$

QUESTÃO U

$y = 3^x$

$y' = (3^x)'$ $\Rightarrow y' = 3^x \ln 3$

$y = a^x \Rightarrow y' = a^x \ln a$

QUESTÃO U

$$y = \left(\frac{1}{2}\right)^x$$

$$y' = \left[\left(\frac{1}{2}\right)^x\right]'$$

$$= \left(\frac{1}{2}\right)^x \ln\left(\frac{1}{2}\right)$$

$y = a^x \Rightarrow y' = a^x \ln a$

QUESTÃO U

$$y = (x^2 - 1)^5$$

$$y' = [(x^2-1)^5]'$$
$$= 5(x^2-1)^{5-1}(x^2-1)'$$
$$= 5(x^2-1)^4[(x^2)' - (1)']$$
$$= 5(x^2-1)^4(2x^{2-1} - 0)$$
$$= 5(x^2-1)^4(2x)$$
$$= 10x(x^2-1)^4$$

$y = u^a \Rightarrow y' = a u^{a-1} \cdot u'$

QUESTÃO X

$$y = 4(1-x)^5$$

$$y' = [4(1-x)^5]'$$
$$= 4[(1-x)^5]'$$
$$= 4[5(1-x)^{5-1}](1-x)'$$
$$= 4[5(1-x)^4][(1)' - (x)']$$
$$= [20(1-x)^4][0 - (1x^{1-1})]$$
$$= [20(1-x)^4][-x^0]$$
$$= [20(1-x)^4](-1)$$
$$= -20(1-x)^4$$

$y = u^a \Rightarrow y' = a u^{a-1} \cdot u'$

11

QUESTÃO Y

$y = (x^3 - 10x^5)^3$

$y' = [(x^3 - 10x^5)^3]'$ $\quad y = u^a \Rightarrow y' = a u^{a-1} \cdot u'$

$= 3(x^3 - 10x^5)^{3-1}(x^3 - 10x^5)'$

$= 3(x^3 - 10x^5)^2[(x^3)' - (10x^5)']$

$= 3(x^3 - 10x^5)^2[3x^{3-1} - 10(x^5)']$

$= 3(x^3 - 10x^5)^2[3x^2 - 10(5x^{5-1})]$

$= 3(x^3 - 10x^5)^2(3x^2 - 50x^3)$

$= (x^3 - 10x^5)^2(9x^2 - 120x^3)$

QUESTÃO Z

$y = e^{2x}$

$y' = (e^{2x})'$ $\quad y = e^u \Rightarrow y' = e^u \cdot u'$

$= e^{2x}(2x)'$

$= 2e^{2x}(x)'$

$= 2e^{2x}[1(x^{1-1})]$

$= 2e^{2x}(x^0)$

$= 2e^{2x}(1)$

$= 2e^{2x}$

QUESTÃO AA

$y = e^{\ln x}$

$y' = (e^{\ln x})'$ $\quad y = e^u \Rightarrow y' = e^u \cdot u'$

$= e^{\ln x}(\ln x)'$

$= \left(\frac{1}{x}\right)e^{\ln x}$

QUESTÃO BB

$$y = e^{-\frac{1}{2}(x-1)^2}$$

$$y' = \left[e^{-1/2(x-1)^2}\right]' \qquad y = e^u \Rightarrow y' = e^u \cdot u'$$

$$= e^{-1/2(x-1)^2}\left[-\frac{1}{2}(x-1)^2\right]'$$

$$= -\frac{1}{2} e^{-1/2(x-1)^2}\left[(x-1)^2\right]'$$

$$= -\frac{1}{2} e^{-1/2(x-1)^2}\left[2(x-1)^{2-1}(x-1)'\right]$$

$$= -\frac{1}{2} e^{-1/2(x-1)^2}\left\{2(x-1)\left[(x)' - (1)'\right]\right\}$$

$$= -\frac{1}{2} e^{-1/2(x-1)^2}\left[2(x-1)(1x^{1-1} - 0)\right]$$

$$= -\frac{1}{2} e^{-1/2(x-1)^2}\left[2(x-1)(x^0)\right]$$

$$= -\frac{1}{2} e^{-1/2(x-1)^2}\left[2(x-1)(1)\right]$$

$$= -\frac{2}{2} e^{-1/2(x-1)^2}(x-1)$$

$$= (1-x)\, e^{-1/2(x-1)^2}$$

QUESTÃO CC

$$y = \ln(x^2 + 3x + 9)$$

$$y' = \left[\ln(x^2+3x+9)\right]' \qquad y = \ln u \Rightarrow \frac{u'}{u}$$

$$= \frac{(x^2+3x+9)'}{x^2+3x+9}$$

$$= \frac{(x^2)' + (3x)' + (9)'}{x^2+3x+9}$$

$$= \frac{2x^{2-1} + 3(x)' + 0}{x^2+3x+9}$$

$$= \frac{2x + 3(1x^{1-1})}{x^2+3x+9}$$

$$\Rightarrow y' = \frac{2x + 3(x^0)}{x^2+3x+9} = \frac{2x+3(1)}{x^2+3x+9} \Rightarrow y' = \frac{2x+3}{x^2+3x+9}$$

QUESTÃO DD

$$y = \ln(\sqrt{2}\, x^2)$$

$$y' = [\ln(\sqrt{2}\, x^2)]'$$

$$= \frac{(\sqrt{2}\, x^2)'}{\sqrt{2}\, x^2}$$

$$= \frac{\sqrt{2}\,(x^2)'}{\sqrt{2}\, x^2}$$

$$= \frac{2x^{2-1}}{x^2}$$

$$= \frac{2x^1}{x^{2-1}} \rightarrow y' = \frac{2}{x}$$

$y = \ln u \Rightarrow y' = \frac{u'}{u}$

QUESTÃO EE

$$y = \ln\left(\frac{4}{x} + 1\right)$$

$$y' = \left[\ln\left(\frac{4}{x} + 1\right)\right]'$$

$$= \frac{(4/x + 1)'}{4/x + 1}$$

$$= \frac{(4/x)' + (1)'}{4/x + 1}$$

$$= \frac{x(4)' - (4)(x)' + 0}{x^2} \Big/ (4/x + 1)$$

$$= \frac{x(0) - 4(1x^{1-1})}{x^2} \Big/ (4/x + 1)$$

$$y' = \frac{0 - 4(x^0)}{x^2} \Big/ (4/x + 1)$$

$$= \frac{-4(1)}{x^2} \Big/ (4/x + 1)$$

$$= \frac{-4/x^2}{4/x + 1} \rightarrow y' = \frac{-4/x^2}{\frac{4+x}{x}}$$

$$= \frac{-4}{x^2}\left(\frac{x^2}{4+x}\right)$$

$$= \frac{-4}{x(4+x)}$$

$$= \frac{-4}{4x + x^2}$$

$y = \ln u \Rightarrow y' = \frac{u'}{u}$

QUESTÃO FF

$y = (10)^{3-x}$

$y' = [(10)^{3-x}]'$ $\qquad y = a^u \Rightarrow a^u \ln a \cdot u'$

$= 10^{3-x} \ln 10 (3-x)'$

$= 10^{3-x} \ln 10 [(3)' - (x)']$

$= 10^{3-x} \ln 10 (0 - 1x^{1-1})$

$= 10^{3-x} \ln 10 (-x^0)$

$= 10^{3-x} \ln 10 (-1)$

$= -10^{3-x} \ln 10$

QUESTÃO GG

$y = 3^{-0,1x^2}$

$y' = (3^{-0,1x^2})'$ $\qquad y = a^u \Rightarrow y' = a^u \ln a \cdot u'$

$= 3^{-0,1x^2} \ln 3 (-0,1x^2)'$

$= 3^{-0,1x^2} \ln 3 (-0,1)(x^2)'$

$= 3^{-0,1x^2} \ln 3 (-0,1)(2x^{2-1})$

$= 3^{-0,1x^2} \ln 3 (-0,1)(2x)$

$= (-0,2x) 3^{-0,1x^2} \ln 3$

QUESTÃO HH

$y = 10^{1-6x}$

$y' = (10^{1-6x})'$ $\qquad y = a^u \Rightarrow y' = a^u \ln a \cdot u'$

$= 10^{1-6x} \ln 10 (1-6x)'$

$= 10^{1-6x} \ln 10 [(1)' - (6x)']$

$= 10^{1-6x} \ln 10 [0 - 6(x)']$

$= 10^{1-6x} \ln 10 [-6(1x^{1-1})]$

$= 10^{1-6x} \ln 10 [-6(x^0)]$

$= 10^{1-6x} \ln 10 [-6(1)]$

$= (-6) 10^{1-6x} \ln 10$

15

QUESTÃO II

$$y = \sqrt{3}\,x^3 - x^2 \ln 4 + 10$$

$$y' = (\sqrt{3}\,x^3 - x^2 \ln 4 + 10)' \qquad (u \pm v)' = u' \pm v'$$
$$= (\sqrt{3}\,x^3)' - (x^2 \ln 4)' + (10)'$$
$$= \sqrt{3}\,(x^3)' - \ln 4\,(x^2)' + 0$$
$$= \sqrt{3}\,(3x^{3-1}) - \ln 4\,(2x^{2-1})$$
$$= \sqrt{3}\,(3x^2) - \ln 4\,(2x)$$
$$= 3\sqrt{3}\,x^2 - 2x \ln 4$$

QUESTÃO JJ

$$y = x^4 \ln 3 - \frac{x^2}{2} + 1$$

$$y' = \left(x^4 \ln 3 - \frac{x^2}{2} + 1\right)' \qquad (u \pm v)' = u' \pm v'$$
$$= (x^4 \ln 3)' - \left(\frac{x^2}{2}\right)' + (1)'$$
$$= \ln 3\,(x^4)' - \left(\frac{1}{2}x^2\right)' + 0$$
$$= \ln 3\,(4x^{4-1}) - \frac{1}{2}(x^2)'$$
$$= \ln 3\,(4x^3) - \frac{1}{2}(2x^{2-1})$$
$$= 4x^3 \ln 3 - \frac{1}{2}(2x)$$
$$= 4x^3 \ln 3 - x$$

QUESTÃO KK

$$y = \frac{4}{3}x^6 - 0{,}4x^5 - \frac{1}{10}x^2$$

$$y' = \left(\frac{4}{3}x^6 - 0{,}4x^5 - \frac{1}{10}x^2\right)' \qquad (u \pm v)' = u' \pm v'$$

$$= \left(\frac{4}{3}x^6\right)' - (0{,}4x^5)' - \left(\frac{1}{10}x^2\right)'$$

$$= \frac{4}{3}(x^6)' - 0{,}4(x^5)' - \frac{1}{10}(x^2)'$$

$$= \frac{4}{3}(6x^{6-1}) - 0{,}4(5x^{5-1}) - \frac{1}{10}(2x^{2-1})$$

$$= \frac{4}{3}(6x^5) - 0{,}4(5x^4) - \frac{1}{10}(2x)$$

$$= 8x^5 - 2x^4 - \frac{1}{5}x$$

QUESTÃO LL

$$y = 4x^3e^x$$

$$y' = (4x^3e^x)' \qquad (u \cdot v)' = u \cdot v' + v \cdot u'$$

$$= 4(x^3e^x)'$$

$$= 4[x^3(e^x)' + e^x(x^3)']$$

$$= 4[x^3e^x + e^x(3x^{3-1})]$$

$$= 4[x^3e^x + 3e^x x^2)$$

$$= 4x^2e^x(x+3)$$

QUESTÃO MM

$$y = -x^3e^x$$

$$y' = (-x^3e^x)' \qquad (u \cdot v)' = u \cdot v' + v \cdot u'$$

$$= -[x^3(e^x)' + e^x(x^3)']$$

17

$y' = -[x^3 e^x + e^x(3x^{3-1})]$

$= -(x^3 e^x + e^x 3x^2)$

$= -x^2 e^x (x+3)$

QUESTÃO NN

$y = \frac{1}{4} x^5 (1-2x)$

$y' = \left[\frac{1}{4} x^5 (1-2x)\right]'$

$= \frac{1}{4}[x^5(1-2x)]'$ $\qquad (u.v)' = u.v' + v.u'$

$= \frac{1}{4}[x^5(1-2x)' + (1-2x)(x^5)']$

$= \frac{1}{4}\{x^5[(1)' - (2x)'] + (1-2x)(5x^{5-1})\}$

$= \frac{1}{4}\{x^5[0 - 2(x)'] + (1-2x)(5x^4)\}$

$= \frac{1}{4}\{x^5[-2(1x^{1-1})] + (1-2x)(5x^4)\}$

$= \frac{1}{4}\{x^5[-2(x^0)] + (1-2x)(5x^4)\}$

$= \frac{1}{4}\{x^5[-2(1)] + (1-2x)(5x^4)\}$

$= \frac{1}{4}[-2x^5 + (1-2x)(5x^4)]$

$= \frac{x^4}{4}[-2x + (1-2x)(5)]$

$= \frac{x^4}{4}(-2x + 5 - 10x)$

$y' = \frac{x^4}{4}(5 - 12x)$

QUESTÃO OO

$$y = \frac{4}{x}$$

$$y' = \left(\frac{4}{x}\right)'$$

$$= (4x^{-1})' \qquad (k \cdot u)' = k \cdot u'$$

$$= 4(x^{-1})'$$

$$= 4(-1x^{-1-1})$$

$$= 4(-x^{-2})$$

$$= -\frac{4}{x^2}$$

QUESTÃO PP

$$y = \frac{10}{x^2}$$

$$y' = \left(\frac{10}{x^2}\right)'$$

$$= (10x^{-2})' \qquad (k \cdot u)' = k \cdot u'$$

$$= 10(x^{-2})'$$

$$= 10(-2x^{-2-1})$$

$$= 10(-2x^{-3})$$

$$= -\frac{20}{x^3}$$

QUESTÃO QQ

$$y = \frac{-1}{x^2}$$

$$y' = \left(\frac{-1}{x^2}\right)'$$

$y' = (-1x^{-2})'$ $\qquad (k \cdot u)' = k \cdot u'$

$= -1(x^{-2})'$

$= -1(-2x^{-2-1})$

$= -1(-2x^{-3})$

$= \frac{2}{x^3}$

QUESTÃO 11

$y = \frac{4x}{x-1}$

$y' = \left(\frac{4x}{x-1}\right)'$ $\qquad \left(\frac{u}{v}\right)' = \frac{v \cdot u' - u \cdot v'}{v^2}$

$= \frac{(x-1)(4x)' - (4x)(x-1)'}{(x-1)^2}$

$= \frac{(x-1)(4)(x)' - (4x)[(x)' - (1)']}{(x-1)^2}$

$= \frac{(x-1)(4)(1x^{1-1}) - (4x)(1x^{1-1} - 0)}{(x-1)^2}$

$= \frac{(x-1)(4)(x^0) - (4x)(x^0)}{(x-1)^2}$

$= \frac{(x-1)(4)(1) - (4x)(1)}{(x-1)^2}$

$= \frac{(x-1)(4) - 4x}{(x-1)^2}$

$= \frac{4x - 4 - 4x}{(x-1)^2}$

$= \frac{-4}{(x-1)^2}$

QUESTÃO 55

$$y = \frac{x}{1-x}$$

$$y' = \left(\frac{x}{1-x}\right)' \qquad \left(\frac{u}{v}\right)' = \frac{v \cdot u' + u \cdot v'}{v^2}$$

$$= \frac{(1-x)(x)' - (x)(1-x)'}{(1-x)^2}$$

$$= \frac{(1-x)(1x^{1-1}) - (x)[(1)' - (x)']}{(1-x)^2}$$

$$= \frac{(1-x)(x^0) - (x)(0 - 1x^{1-1})}{(1-x)^2}$$

$$= \frac{(1-x)(1) - (x)(-x^0)}{(1-x)^2}$$

$$= \frac{(1-x) - (x)(-1)}{(1-x)^2}$$

$$= \frac{1 - x + x}{(1-x)^2}$$

$$= \frac{1}{(1-x)^2}$$

QUESTÃO 77

$$y = \frac{x}{e^x}$$

$$y' = \left(\frac{x}{e^x}\right)' \qquad \left(\frac{u}{v}\right)' = \frac{v \cdot u' - u \cdot v'}{v^2}$$

$$= \frac{(e^x)(x)' - (x)(e^x)'}{(e^x)^2}$$

$$= \frac{(e^x)(1x^{1-1}) - (x)e^x}{e^{2x}}$$

$$= \frac{e^x(x^0) - xe^x}{e^{2x}}$$

21

$$y' = \frac{e^x(1) - xe^x}{e^{2x}}$$

$$= \frac{e^x - xe^x}{e^{2x}}$$

$$= \frac{e^x(1-x)}{e^{2x}}$$

$$y' = \frac{1-x}{e^x}$$

QUESTÃO UU

$z = 2x + 3y + 1 \qquad x = g(t) = t^2 \qquad y = h(t) = 3t + 1$

$z' = (2x + 3y + 1)'$

$= (2x)' + (3y)' + (1)'$

$= 2(t^2)' + 3(3t+1)' + 0$

$= 2(2t^{2-1}) + 3[(3t)' + (1)']$

$= 2(2t) + 3[3(t)' + 0]$

$= 4t + 3[3(1t^{1-1})]$

$= 4t + 3[3(t^0)]$

$= 4t + 3[3(1)]$

$= 4t + 3(3)$

$= 4t + 9$

$R = M(u(x)) \Rightarrow R' = M'(u(x)) \cdot u(x)$

QUESTÃO VV

$z = e^{3x+y^3} \qquad x = g(t) = t^2 - 2t \qquad y = h(t) = t^3$

$z' = (e^{3x+y^3})'$

$= e^{3x+y^3}(3x+y^3)'$

$= e^{3x+y^3}[(3x)' + (y^3)']$

$= e^{3x+y^3}[3(x)' + (y^3)']$

$= e^{3x+y^3}[3(1)(t^2-2t)' + 3y^{3-1}(t^3)']$

$z' = e^{3x+y^3}\{3[2t^{2-1} - 2(1)(t^{1-1})] + 3y^2(3t^{3-1})\}$

$= e^{3x+y^3}\{3[2t - 2(t^0)] + 3(t^3)^2(3t^2)\}$

$= e^{3x+y^3}\{3[2t - 2(1)] + 3t^6(3t^2)\}$

$= e^{3x+y^3}[3(2t-2) + 9t^8]$

$= e^{3x+y^3}(6t - 6 + 9t^8)$

$= (9t^8 + 6t - 6)e^{3(t^2-2t)+(t^3)^3}$

$= (9t^8 + 6t - 6)e^{3t^2-6t+t^9}$

$= (9t^8 + 6t - 6)e^{t^9+3t^2-6t}$

QUESTÃO WW

$z = x^2 + y^2 - 1 \qquad x = g(x) = x \qquad y = h(x) = 3x - 7$

$z' = (x^2 + y^2 - 1)' \qquad R = r(u(x)) \Rightarrow R' = r'(u(x)) \cdot u'(x)$

$= (x^2)' + (y^2)' - (1)'$

$= 2x(x)' + 2y(3x-1)' - 0$

$= 2x(1x^{1-1}) + 2y[(3x)' - (1)']$

$= 2x[x^0) + 2y[3(x)' - 0]$

$= 2x(1) + 2y[3(1x^{1-1})]$

$= 2x + 2y[3(x^0)]$

$= 2x + 2y[3(1)]$

$= 2x + 2y(3)$

$= 2x + 6y$

$= 2x + 6(3x-1)$

$= 2x + 18x - 6$

$= 20x - 6$