Quiz #1

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Cálculo 1

2) $y = 2x^{-6} + x^{-1}$

$y' = 2(-6)x^{-7} + (-1)x^{-2}$

$y' = -12x^{-7} - x^{-2}$

3) $y = xe^{-x}$

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

$= e^{-x} + (-x)'e^{-x}x$

$= e^{-x} - xe^{-x}$

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

4) $y = \cos(3x^2 - 2x)$

$y' = -\operatorname{sen}(3x^2-2x)(3x^2-2x)'$

$= -\operatorname{sen}(3x^2-2x)(6x-2)$

$= -(6x-2)\operatorname{sen}(3x^2-2x)$

5) $y = \ln(\operatorname{sen}x)$

$y' = \frac{\operatorname{sen}x'}{\operatorname{sen}x} = \frac{\cos x}{\operatorname{sen}x} = \cot x$

6) $\frac{d^3y}{dx^3}\, y = \operatorname{sen}7x$

$y' = 7\cos 7x$

$y'' = 7(-\operatorname{sen}7x)(7)$

$y'' = -49\operatorname{sen}7x$

$y''' = -49\cos 7x(7x)$

$y''' = -343\cos 7x$

7) EC Recta tangente

$x^2 + y^2 = 6 \quad P(\sqrt{3}, \sqrt{3})$

$x^{2'} + y^{2'} = 6'$

$2x + 2yy' = 0$

$2yy' = -2x$

$y' = \frac{-2x}{2y}$

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

$m = \frac{-x}{y} = \frac{-\sqrt{3}}{\sqrt{3}} = -1$

$y - y_1 = m(x - x_1)$

$y - \sqrt{3} = -1(x - \sqrt{3})$

$y + \sqrt{3} = -x + \sqrt{3}$

$y = -x + \sqrt{3} + \sqrt{3}$

$y = -x + 2\sqrt{3}$

8) $y = x^{-1}$

$y' = -1x^{-2}$

$= -x^{-2}$

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

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

$= \nexists$