MATEMÁTICA 6° Prof TENENBAUM "DERIVANDO...."

DADAS LAS SIGUIENTES FUNCIONES, HALLAR LAS DERIVADAS PRIMERA Y SEGUNDA Y ESTUDIAR DOMINIO, CONTINUIDAD, RAMAS INFINITAS Y ASINTOTAS, CRECIMIENTO, CONCAVIDAD, Y GRAFICARLAS.

FUNCIÓN	DERIVADA 1ª	DERIVADA 2ª
$a(x) = L\left(\frac{x-1}{x+4}\right)$	$a'(x) = \frac{5}{(x-1)(x+4)}$	$a''(x) = \frac{-5(2x+3)}{(x-1)^2(x+4)^2}$
$b(x) = \frac{x-1}{x+4}$	$b'(x) = \frac{5}{(x+4)^2}$	$b''(x) = \frac{-10}{(x+4)^3}$
$c(x) = L\left\lvert\frac{x-1}{x+4}\right\rvert$	$c'(x) = a'(x)$	$c''(x) = a''(x)$
$d(x) = L\left(\frac{(x-5)^3}{x-2}\right)$	$d'(x) = \frac{2x-1}{(x-2)(x-5)}$	$d''(x) = \frac{-2x^2+2x+13}{(x-2)^2(x-5)^2}$
$f(x) = e^x(x^2-4x)$	$f'(x) = e^x(x^2-2x-4)$	$f''(x) = e^x(x^2-6)$
$g(x) = e^{2x}(x^2-4x)$	$g'(x) = e^{2x}(2x^2-6x-4)$	$g''(x) = e^{2x}(4x^2-8x-14)$
$h(x) = \begin{cases} e^{-\frac{2}{x}}(3-x) & \text{PARA } x \le 4 \\ \sqrt{x^2-1} & \text{PARA } x > 4 \end{cases}$	$h'(x) = \begin{cases} e^{-\frac{2}{x}}\frac{(-x^2-2x+6)}{x^2} & \\ \frac{x}{\sqrt{x^2-1}} & \end{cases}$	$h''(x) = \begin{cases} e^{-\frac{2}{x}}\frac{(12-16x)}{x^4} & \\ \frac{-1}{\sqrt{(x^2-1)^3}} & \end{cases}$
$m(x) = \lvert x^2-x-6\rvert + x - 5$	$m'(x) = \begin{cases} 2x & x < -2 \\ & x > 3 \\ -2x+2 & -2 < x < 3 \end{cases}$	$m''(x) = \begin{cases} 2 & x < -2 \\ & x > 3 \\ -2 & -2 < x < 3 \end{cases}$

$f(x)$	$f'(x)$	$f''(x)$
$f(x)=\dfrac{x}{x^2-1}$	$f'(x)=\dfrac{-x^2-1}{(x^2-1)^2}$	$f''(x)=\dfrac{2x(x^2+3)}{(x^2-1)^3}$
$g(x)=\dfrac{2x^2-x-6}{3x}-Lx$	$g'(x)=\dfrac{2x^2-3x+6}{3x^2}$	$g''(x)=\dfrac{x-4}{x^3}$
$h(x)=\dfrac{x^2+x}{e^x}$	$h'(x)=\dfrac{-x^2+x+1}{e^x}$	$h''(x)=\dfrac{x^2-3x}{e^x}$
$j(x)=e^x(2x^2-3x)$	$j'(x)=e^x(2x^2+x-3)$	$j''(x)=e^x(2x^2+5x-2)$
$k(x)=L\left(\dfrac{x^2}{x^2+1}\right)-x+2$	$k'(x)=\dfrac{-x^3-x+2}{x(x^2+1)}$	$k''(x)=\dfrac{6x^2+2}{x^2(x^2+1)^2}$
$m(x)=e^{-\frac{1}{x+2}}\cdot\left(\dfrac{-x-8}{x+2}\right)$	$m''(x)=e^{-\frac{1}{x+2}}\cdot\left(\dfrac{-10x^2-17x}{(x+2)^5}\right)$	$m'(x)=e^{-\frac{1}{x+2}}\cdot\dfrac{5x+4}{(x+2)^3}$
$q(x)=\dfrac{-x^2+3}{x}-L\left\lvert\dfrac{x-2}{x}\right\rvert$	$q'(x)=\dfrac{x^3-2x^2-5x+6}{x^2(x-2)}$	$q''(x)=\dfrac{10x^2-28x+24}{x^3(x-2)^2}$
$t(x)=e^{-x+1}(x^2+x+1)$	$t'(x)=e^{-x+1}(-x^2+x)$	$t''(x)=e^{-x+1}(x^2-3x+1)$
$y(x)=\dfrac{3x^2-5x-2}{x-1}$	$y'(x)=\dfrac{3x^2-6x+7}{(x-1)^2}$	$y''(x)=\dfrac{-8}{(x-1)^3}$
$z(x)=\sqrt{x^2+6x-5}$	$z'(x)=\dfrac{x+3}{\sqrt{x^2+6x-5}}$	$z''(x)=\dfrac{-14}{\sqrt{(x^2+6x-5)^3}}$