Derivadas

$1) y = 6x^3 - x^2 \rightarrow y' = 18x^2 - 2x \rightarrow y'' = 36x - 2 \rightarrow y''' = 36 \rightarrow y^{iv} = 0$

$2) y = \frac{x^3 - x^2 + 1}{5} \rightarrow y' = \frac{3x^2 - 2x}{5} \rightarrow y'' = \frac{6x - 2}{5} \rightarrow y''' = \frac{6}{5} \rightarrow y^{iv} = 0$

$3) y = 6x^{\frac{7}{2}} + 4x^{\frac{5}{2}} + 2x \rightarrow y' = 21x^{\frac{5}{2}} + 10x^{\frac{3}{2}} + 2 \rightarrow y'' = \frac{105}{2}x^{\frac{3}{2}} + 15x^{\frac{1}{2}}$

$4) y = \sqrt{3x} + \sqrt[3]{x} + \frac{1}{x} \rightarrow y' = \frac{3}{2\sqrt{3x}} + \frac{1}{3\sqrt[3]{x^2}} - \frac{1}{x^2}$

$5) y = \frac{5 - x}{5 + x} \rightarrow y' = \frac{-10}{(5 + x)^2} \rightarrow y'' = \frac{20}{(5 + x)^3}$

$6) y = \frac{x^3}{x^2 + 1} \rightarrow y' = \frac{x^4 + 3x^2}{\left(x^2 + 1\right)^2}$

$7) y = (2x^2 - 3)^2 \rightarrow y' = 16x^3 - 24x \rightarrow y'' = 48x^2 - 24 \rightarrow y''' = 96x$

$8) y = \sqrt{\cos x} \rightarrow y' = \frac{-sen x}{2\sqrt{\cos x}}$

$9) y = tg(2x + \pi) \rightarrow y' = \frac{2}{\cos^2(2x + \pi)}$

$10) y = e^{x - 3x^4} \rightarrow y' = e^{x - 3x^4} \cdot (1 - 12x^3)$

$11) y = 7x sen x \rightarrow y' = 7 sen x + 7x \cos x$

$12) y = \ln(x^3 - 5x^2) \rightarrow y' = \frac{3x^2 - 10x}{x^3 - 5x^2}$

$13) y = 2^{\ln x} \rightarrow y = 2^{\ln x} \cdot \ln 2 \cdot \frac{1}{x}$

$14) y = 5x^3 + \sqrt{x} \rightarrow y' = 15x^2 + \frac{1}{2\sqrt{x}}$

$15) y = e^x + e^{-x} \rightarrow y' = e^x - e^{-x} \rightarrow y'' = e^x + e^{-x}$

$16) y = \frac{1}{2 + sen x} \rightarrow y = \frac{-\cos x}{(2 + sen x)^2}$

$17) y = \frac{x^6}{6} + \frac{sen(7x)}{7} \rightarrow y' = x^3 + \cos 7x \rightarrow y'' = 5x^4 - 7 sen(7x)$

$18) y = \cos^3 x \rightarrow y' = -3\cos^2 x sen x \rightarrow y'' = 6\cos x \cdot sen^2 x - 3\cos^3 x$

$19) y = \frac{2x - 1}{(x - 2)x} \rightarrow y' = \frac{-2x^2 + 2x - 2}{(x^2 - 2x)^2}$

$20) y = \frac{x^3 + 1}{-x^2 + 2} \rightarrow y' = \frac{-x^4 + 6x^2 + 2x}{(-x^2 + 2)^2}$

$21) y = \frac{x^2 + 4x}{x^2 + 3x - 4} \rightarrow y' = \frac{-x^2 - 8x - 16}{(x^2 + 3x - 4)^2}$

$22) y = sen 8x + \cos 8x \rightarrow y' = 8\cos 8x - 8 sen 8x$

2.-Calcula las siguientes derivadas:

$a)\ f(x)=\sqrt[5]{x}$	$f'(x)=\dfrac{1}{5\sqrt[5]{x^4}}$
$b)\ f(x)=6x^2-3x+8$	$f'(x)=12x-3$
$c)\ f(x)=\dfrac{1}{\sqrt{x}}$	$f'(x)=\dfrac{-1}{2x\sqrt{x}}$
$d)\ f(x)=\dfrac{3x}{x+1}$	$f'(x)=\dfrac{3}{(x+1)^2}$
$e)\ f(x)=(6x^5+4)\sqrt{x}$	$f'(x)=30x^4\sqrt{x}+\dfrac{6x^5+4}{2\sqrt{x}}$
$f)\ f(x)=\dfrac{1}{x}$	$f'(x)=\dfrac{-1}{x^2}$
$g)\ f(x)=8\dfrac{1}{x^4}$	$f'(x)=\dfrac{-32}{x^5}$
$h)\ f(x)=e^x tgx$	$f'(x)=e^x\cdot tgx+\dfrac{e^x}{\cos^2 x}$
$i)\ f(x)=e^x senx\cos x$	$f'(x)=e^x\cdot senx\cdot\cos x+e^x\cos^2 x-e^x sen^2 x$
$j)\ f(x)=e^x senx\cdot\cos x$	$f'(x)=e^x senx\cdot\cos x+e^x\cos^2 x-e^x sen^2 x$
$k)\ f(x)=xe^x\ln x$	$f'(x)=e^x\ln x+xe^x\ln x+e^x$
$l)\ f(x)=senx\cdot\cos x$	$f'(x)=\cos^2 x-sen^2 x$
$m)\ f(x)=e^x senx-e^x\cos x$	$f'(x)=2e^x senx$
$n)\ f(x)=\dfrac{e^x}{3\ln x}$	$f'(x)=\dfrac{e^x\left(\ln x-\dfrac{1}{x}\right)}{3\ln^2 x}$
$\tilde{n})\ f(x)=\ln x-\dfrac{1}{x}$	$f'(x)=\dfrac{1}{x}+\dfrac{1}{x^2}$
$o)\ f(x)=\dfrac{\ln x}{e^x}$	$f'(x)=\dfrac{\dfrac{1}{x}-\ln x}{e^x}$
$p)\ f(x)=4\ln x$	$f'(x)=\dfrac{4}{x}$
$q)\ f(x)=x\ln x$	$f'(x)=\ln x+1$
$r)\ f(x)=\dfrac{3x^3-6x^2+1}{x^2+3}$	$f'(x)=\dfrac{3x^4+27x^2-38x}{(x^2+3)^2}$