Ejemplo 1

Dada la función $f(x)$	la reescribimos...	hallamos su derivada...	y la simplificamos...
01) $y = \dfrac{x^3}{5} - \dfrac{2}{x^4}$	$y = \dfrac{1}{5}x^3 - 2x^{-4}$	$y' = \dfrac{1}{5}\cdot 2x^2 - 2\cdot(-4)\cdot x^{-5}$	$y' = \dfrac{2x^2}{5} + \dfrac{8}{x^5}$
02) $y = \dfrac{2x^2 - 3x + 1}{x}$	$y = \dfrac{2x^{\cancel{2}}}{\cancel{x}} - \dfrac{3\cancel{x}}{\cancel{x}} + \dfrac{1}{x}$	$y' = 2 - \dfrac{1}{x^2}$	$y' = \dfrac{2x^2 - 1}{x^2}$
03) $y = \dfrac{x^3 - 3x^2 + 4}{x^2}$	$y = \dfrac{x^{\cancel{3}}}{x^{\cancel{2}}} - \dfrac{3x^{\cancel{2}}}{x^{\cancel{2}}} + 4x^{-2}$	$y' = 1 + 4\cdot(-2)x^{-3} = 1 - 8x^{-3}$	$y' = \dfrac{x^3 - 8}{x^3}$
04) $y = (x^2 + 2x)(x+1)$		$y' = (2x+2)(x+1) + (x^2 + 2x)$	$y' = 3x^2 + 6x + 2$
05) $y = x(x^2 + 1)$	$y = x^3 + x$	$y' = 3x^2 + 1$	
06) $y = \dfrac{4}{x^{-3}}$	$y = 4x^3$	$y' = 12x^2$	
07) $y = \dfrac{\sqrt{x}}{x}$	$y = x^{\frac{1}{2}}\cdot x^{-1} = x^{-\frac{1}{2}}$	$y' = -\dfrac{1}{2}x^{-\frac{3}{2}}$	$y' = \dfrac{-1}{2\sqrt{x^3}}$
08) $y = \sqrt[3]{x} + \sqrt[5]{x}$	$y = x^{\frac{1}{3}} + x^{\frac{1}{5}}$	$y' = \dfrac{1}{3}x^{-\frac{2}{3}} + \dfrac{1}{5}x^{-\frac{4}{5}}$	$y' = \dfrac{1}{3\sqrt[3]{x^2}} + \dfrac{1}{5\sqrt[5]{x^4}}$
09) $y = x^{\frac{1}{4}} - 1$		$y' = \dfrac{1}{4}x^{-\frac{3}{4}}$	$y' = \dfrac{1}{4\sqrt[4]{x^3}}$
10) $y = \dfrac{\pi}{(5x)^2}$	$y = \pi(5x)^{-2}$	$y' = -2\pi(5x)^{-3}\cdot 5 = -\dfrac{10\pi}{5^3 x^3}$	$y' = \dfrac{-2\pi}{25x^3}$
11) $y = \dfrac{x}{\sqrt{x}} - \dfrac{\sqrt{x}}{x}$	$y = x^{\frac{1}{2}} - x^{-\frac{1}{2}}$	$y' = \dfrac{1}{2}x^{-\frac{1}{2}} - \left(-\dfrac{1}{2}\right)x^{-\frac{3}{2}}$	$y' = \dfrac{1}{2\sqrt{x}} + \dfrac{1}{2\sqrt{x^3}} = \dfrac{x+1}{2\sqrt{x^3}}$
12) $y = \ln^3 x$		$y' = \dfrac{3\ln^2 x}{x}$	

Ejemplo 2

Dada la función $f(x)$	la reescribimos...	hallamos su derivada...	y la simplificamos...
01) $y = (1 + 3x^4)^5$		$y' = 5(1 + 3x^4)^4 12x^3$	$y' = 60x^3(1 + 3x^4)^4$
02) $y = (1 + x + x^2)^3$		$y' = 3(1 + x + x^2)^2\cdot(1 + 2x)$	$y' = (6x + 3)(1 + x + x^2)^2$
03) $y = \dfrac{1}{(x^2 - 1)^4}$	$y = (x^2 - 1)^{-4}$	$y' = -4(x^2 - 1)^{-5}\cdot(2x)$	$y' = \dfrac{-8x}{(x^2 - 1)^5}$
04) $y = \sqrt{1 - x^2}$	$y = (1 - x^2)^{\frac{1}{2}}$	$y' = \dfrac{1}{2}(1 - x^2)^{-\frac{1}{2}}\cdot(-2x)$	$y' = \dfrac{-x}{\sqrt{1 - x^2}}$
05) $y = \sqrt[3]{2 + 5x^2}$	$y = (2 + 5x^2)^{\frac{1}{3}}$	$y' = \dfrac{1}{3}(2 + 5x^2)^{-\frac{2}{3}}\cdot(10x)$	$y' = \dfrac{10x}{3\sqrt[3]{(2 + 5x^2)^2}}$
06) $y = \dfrac{1}{\sqrt[3]{(x^3 - 2)^2}}$	$y = (x^3 - 2)^{-\frac{2}{3}}$	$y' = -\dfrac{2}{3}(x^3 - 2)^{-\frac{5}{3}}\cdot(3x^2)$	$y' = \dfrac{-2x^2}{\sqrt[3]{(x^3 - 2)^5}}$
07) $y = (5 - 3\cos x)^4$		$y' = 4(5 - 3\cos x)^3\cdot[(-3)(-\text{sen}\,x)]$	$y' = 12\,\text{sen}\,x(5 - 3\cos x)^3$
08) $y = \dfrac{1}{arc\,\text{tg}\,x}$	$y = (arc\,\text{tg}\,x)^{-1}$	$y' = (-1)\cdot(arc\,\text{tg}\,x)^{-2}\cdot\dfrac{1}{1 + x^2}$	$y' = -\dfrac{1}{(x^2 + 1)\cdot arc\,\text{tg}^2\,x}$
09) $y = 2\,\text{sen}\,x$		$y' = 2\cos x$	
10) $y = \text{sen}\,x^2$		$y' = 2x\cos x^2$	
11) $y = \text{sen}(2x)$		$y' = 2\cos 2x$	
12) $y = \text{sen}^2 x$	$y = (\text{sen}\,x)^2$	$y' = 2\,\text{sen}\,x\cdot\cos x$	

Dada la función $f(x)$	la reescribimos...	hallamos su derivada...	y la simplificamos...
01) $y = 27x - \pi$		$y' = 27$	
02) $y = \dfrac{x}{11} + \ln\sqrt{2}$		$y' = \dfrac{1}{11}$	
03) $y = \dfrac{7}{x}$	$y = 7x^{-1}$	$y' = 7\cdot(-1)\,x^{-2}$	$y' = \dfrac{-7}{x^2}$
04) $y = \dfrac{5x^2}{4}$		$y' = \dfrac{5}{4}\cdot 2x$	$y' = \dfrac{5x}{2}$
05) $y = -\dfrac{3x}{2}$		$y' = -\dfrac{3}{2}$	
06) $y = \dfrac{5}{2x^3}$	$y = \dfrac{5}{2}x^{-3}$	$y' = \dfrac{5}{2}(-3)x^{-4}$	$y' = \dfrac{-15}{2x^4}$
07) $y = -\dfrac{x^4}{2} + \dfrac{2x^3}{3}$		$y' = -\dfrac{1}{2}\cdot 4x^3 + \dfrac{2}{3}\cdot 3x^2$	$y' = -2x^3 + 2x^2 = -2x^2(x-1)$
08) $y = \dfrac{5}{(2x)^3}$	$y = \dfrac{5}{8}\cdot x^{-3}$	$y' = \dfrac{5}{8}\cdot(-3)\cdot x^{-4}$	$y' = \dfrac{-15}{8x^4}$
09) $y = \dfrac{7}{3x^{-2}}$	$y = \dfrac{7}{3}x^2$	$y' = \dfrac{7}{3}\cdot 2x$	$y' = \dfrac{14x}{3}$
10) $y = \dfrac{7}{(3x)^{-2}}$	$y = 7\cdot(3x)^2$	$y' = 7\cdot 2\cdot(3x)\cdot 3$	$y' = 126x$
11) $y = x\cdot 2^x$		$y' = 2^x + 2^x\ln 2\cdot x$	$y' = 2^x(1 + x\ln 2)$
12) $y = \operatorname{tg}^2 x^2$	$y = \left(\operatorname{tg} x^2\right)^2$	$y' = 2\operatorname{tg} x^2 \sec^2 x^2 \cdot 2x$	$y' = 4x\cdot\operatorname{tg} x^2 \cdot \sec^2 x^2$

Dada la función $f(x)$	la reescribimos...	hallamos su derivada...	y la simplificamos...
01) $y = \dfrac{1}{7} + \sqrt{e}$		$y' = 0$	
02) $y = -x + \sqrt{3}$		$y' = -1$	
03) $y = \sqrt{3}x$		$y' = \sqrt{3}$	
04) $y = \dfrac{x^4}{9}$		$y' = \dfrac{4x^3}{9}$	
05) $y = x^3 + 7x^2 + 10$		$y' = 3x^2 + 14x$	
06) $y = -\dfrac{x^5}{5} + 4x^4 - \dfrac{x^3}{6} - 3$		$y' = -x^4 + 16x^3 - \dfrac{x^2}{2}$	
07) $y = 3\left(x^2 + x + 1\right)$		$y' = 3(2x + 1)$	$y' = 6x + 3$
08) $y = 4\left(2x^3 - 3x^2 + 8\right) - 10x^2 + 2$		$y' = 4\left(6x^2 - 6x\right) - 20x$	$y' = 4x(6x - 11)$
09) $y = \dfrac{2x^3 - 3x^2 + 4x - 7}{2}$		$y' = \dfrac{6x^2 - 6x + 4}{2}$	$y' = 3x^2 - 3x + 2$
10) $y = \left(x^2 + 1\right)\left(2x^3 - 5\right)$		$y' = 2x\left(2x^3 - 5\right) + 6x^2\left(x^2 + 1\right)$	$y' = 10^4 + 6x^2 - 10x$
11) $y = \dfrac{1}{x\sqrt{x}}$	$y = x^{-\frac{3}{2}}$	$y' = -\dfrac{3}{2}x^{-\frac{5}{2}}$	$y' = \dfrac{-3}{2x^2\sqrt{x}}$
12) $y = \sqrt{2x} + \sqrt[3]{5x}$	$y = (2x)^{\frac{1}{2}} + (5x)^{\frac{1}{3}}$	$y' = \dfrac{1}{2}(2x)^{-\frac{1}{2}}\cdot 2 + \dfrac{1}{3}(5x)^{-\frac{2}{3}}\cdot 5$	$y' = \dfrac{1}{\sqrt{2x}} + \dfrac{\sqrt[3]{5}}{3\sqrt[3]{x^2}}$
13) $y = \arccos\sqrt{x}$		$y' = \dfrac{-\dfrac{1}{2\sqrt{x}}}{\sqrt{1-x}}$	$y' = \dfrac{-1}{2\sqrt{x - x^2}}$
14) $y = \operatorname{arc}\operatorname{tg} e^x$		$y' = \dfrac{e^x}{1 + \left(e^x\right)^2}$	$y' = \dfrac{e^x}{1 + e^{2x}}$

Ejemplo 5

Dada la función $f(x)$	la reescribimos...	hallamos su derivada...	y la simplificamos...
01) $y = 2\sqrt{x}$	$y = 2x^{\frac{1}{2}}$	$y' = 2 \cdot \frac{1}{2} \cdot x^{-\frac{1}{2}}$	$y' = \frac{1}{\sqrt{x}}$
02) $y = \dfrac{1}{2\sqrt[3]{x^2}}$	$y = \frac{1}{2}x^{-\frac{2}{3}}$	$y' = \frac{1}{2} \cdot \left(-\frac{2}{3}\right) \cdot x^{-\frac{5}{3}}$	$y' = \frac{-1}{3\sqrt[3]{x^5}}$
03) $y = x^2 - \dfrac{4}{x}$	$y = x^2 - 4x^{-1}$	$y' = 2x + 4x^{-2}$	$y' = 2x + \frac{4}{x^2}$
04) $y = \cos x^4$		$y' = -4x^3 \operatorname{sen} x^4$	
05) $y = \operatorname{sen}\left(x^3 + 3x - 1\right)$		$y' = \left(3x^2 + 3\right)\cos\left(x^3 + 3x - 1\right)$	$y' = 3\left(x^2 + 1\right)\cos\left(x^3 + 3x - 1\right)$
06) $y = \cos\left(x^4 - x\right)$		$y' = \left(4x^3 - 1\right)\left[-\operatorname{sen}\left(x^4 - x\right)\right]$	$y' = \left(1 - 4x^3\right)\operatorname{sen}\left(x^4 - x\right)$
07) $y = x^2\sqrt{5 - 2x}$	$y = \sqrt{5x^4 - 2x^5} = \left(5x^4 - 2x^5\right)^{\frac{1}{2}}$	$y' = \frac{1}{2}\left(5x^4 - 2x^5\right)^{-\frac{1}{2}}\left(20x^3 - 10x^4\right)$	$y' = \frac{2x^2\left(10x - 5x^2\right)}{2x^2\sqrt{5 - 2x}} = \frac{5x(2 - x)}{\sqrt{5 - 2x}}$
08) $y = \dfrac{x}{x^2 + 1} - \dfrac{x}{x^2 - 1}$	$y = \dfrac{-2x}{x^4 - 1}$	$y' = \dfrac{(-2)\left(x^4 - 1\right) - 4x^3(-2x)}{\left(x^4 - 1\right)^2}$	$y' = \dfrac{6x^4 + 2}{\left(x^4 - 1\right)^2}$
09) $y = \dfrac{x^3 + 3x^2 - 5x + 3}{x}$	$y = x^2 + 3x - 5 + 3x^{-1}$	$y' = 2x + 3 + 3(-1)x^{-2}$	$y' = 2x + 3 - \dfrac{3}{x^2}$
10) $y = xe^x$		$y' = e^x + xe^x$	$y' = e^x(1 + x)$
11) $y = \ln 3x$		$y' = \dfrac{1}{x}$	
12) $y = x^x$		$y' = x^x(1 + \ln x)$	

Ejemplo 6

Dada la función $f(x)$	la reescribimos...	hallamos su derivada...	y la simplificamos...
01) $y = \dfrac{1}{x}$		$y' = \dfrac{-1}{x^2}$	
02) $y = \dfrac{1}{x^3}$		$y' = \dfrac{-3}{x^4}$	
03) $y = -\dfrac{1}{x^3 + 1}$		$y' = \dfrac{3x^2}{\left(x^3 + 1\right)^2}$	
04) $y = \dfrac{2}{x^5}$		$y' = -\dfrac{2 \cdot 5x^4}{x^{10}}$	$y' = \dfrac{-10}{x^6}$
05) $y = \dfrac{2}{x^3} + \dfrac{1}{x^2} - \dfrac{3}{x}$		$y' = -\dfrac{6x^2}{x^6} - \dfrac{2x}{x^4} + \dfrac{3}{x^2}$	$y' = \dfrac{3x^2 - 2x - 6}{x^4}$
06) $y = \sqrt[3]{x^2}$	$y = x^{\frac{2}{3}}$	$y' = \dfrac{2}{3}x^{-\frac{1}{3}}$	$y' = \dfrac{2}{3\sqrt[3]{x}}$
07) $y = \sqrt[5]{x^3}$	$y = x^{\frac{3}{5}}$	$y' = \dfrac{3}{5}x^{-\frac{2}{5}}$	$y' = \dfrac{3}{5\sqrt[5]{x^2}}$
08) $y = 2\sqrt[3]{x^2} - 3x^2 + \dfrac{1}{5}$	$y = 2x^{\frac{2}{3}} - 3x^2 + \dfrac{1}{5}$	$y' = 2 \cdot \dfrac{2}{3}x^{-\frac{1}{3}} - 6x$	$y' = \dfrac{4}{3\sqrt[3]{x}} - 6x$
09) $y = \left(x + 2\right)^5$		$y' = 5(x + 2)^4$	
10) $y = \left(2x^2 - 3x + 1\right)^3$		$y' = 3\left(2x^2 - 3x + 1\right)^2(4x - 3)$	$y' = (12x - 9)\left(2x^2 - 3x + 1\right)^2$
11) $y = \sqrt{x^2 + x + 1}$		$y' = \dfrac{2x + 1}{2\sqrt{x^2 + x + 1}}$	
12) $y = \dfrac{\sqrt{x^2 + 1}}{\sqrt{x^2 - 1}}$	$y = \sqrt{\dfrac{x^2 + 1}{x^2 - 1}} = \left(\dfrac{x^2 + 1}{x^2 - 1}\right)^{\frac{1}{2}}$	$y' = \dfrac{1}{2}\left(\dfrac{x^2 + 1}{x^2 - 1}\right)^{-\frac{1}{2}} \cdot \dfrac{2x\left(x^2 - 1\right) - 2x\left(x^2 + 1\right)}{\left(x^2 - 1\right)^2}$	$y' = \dfrac{-2x}{\sqrt{\left(x^2 + 1\right)\left(x^2 - 1\right)^3}}$

Ejemplo 7

Dada la función $f(x)$	la reescribimos...	hallamos su derivada...	y la simplificamos...
01) $y = \dfrac{1}{3\cos^3 x} - \dfrac{1}{\cos x}$	$y = \dfrac{1}{3}(\cos x)^{-3} - (\cos x)^{-1}$	$y' = \dfrac{1}{3}(-3)(\cos x)^{-4}(-\operatorname{sen} x) - (-1)(\cos x)^{-2}(-\operatorname{sen} x)$	$y' = \dfrac{\operatorname{sen} x}{\cos^4 x} - \dfrac{\operatorname{sen} x}{\cos^2 x} = \operatorname{tg}^3 x \cdot \sec x$
02) $y = (x+1)(2x+1)(3x+1)$		$y' = (2x+1)(3x+1) + 2(x+1)(3x+1) + 3(x+1)(2x+1)$	$y' = 18x^2 + 22x + 6$
03) $y = e^{\frac{x}{2}}\operatorname{sen} x$		$y' = \dfrac{e^{\frac{x}{2}}\operatorname{sen} x}{2} + e^{\frac{x}{2}}\cos x$	$y' = \dfrac{e^{\frac{x}{2}}(\operatorname{sen} x + 2\cos x)}{2}$
04) $y = \dfrac{x}{3}\cdot e^{-x}$	$y = \dfrac{1}{3}x\cdot e^{-x}$	$y' = \dfrac{1}{3}\cdot\left(e^{-x} - e^{-x}\cdot x\right)$	$y' = \dfrac{e^{-x}(1-x)}{3}$
05) $y = \left(\dfrac{3x-5}{2}\right)^3$	$y = \dfrac{1}{8}(3x-5)^3$	$y' = \dfrac{1}{8}\left[3\cdot(3x-5)^2\cdot 3\right]$	$y' = \dfrac{9(3x-5)^2}{8}$
06) $y = (1-\operatorname{sen} 5x)^4$		$y' = 4(1-\operatorname{sen} 5x)^3(-\cos 5x\cdot 5)$	$y' = -20\cos 5x\cdot(1-\operatorname{sen} 5x)^3$
07) $y = \sqrt{xe^x + x}$	$y = \left(xe^x + x\right)^{\frac{1}{2}}$	$y' = \dfrac{1}{2}\left(xe^x + x\right)^{-\frac{1}{2}}\left(1 + e^x + xe^x\right)$	$y' = \dfrac{e^x(x+1)+1}{2\sqrt{xe^x + x}}$
08) $y = \sqrt[3]{2^x + x}$	$y = \left(2^x + x\right)^{\frac{1}{3}}$	$y' = \dfrac{1}{3}\left(2^x + x\right)^{-\frac{2}{3}}\left(2^x\ln 2 + 1\right)$	$y' = \dfrac{2^x\ln 2 + 1}{3\sqrt[3]{\left(2^x + x\right)^2}}$
09) $y = \ln(\ln x)$		$y' = \dfrac{1}{x}\Big/\ln x$	$y' = \dfrac{1}{x\ln x}$
10) $y = \ln(\operatorname{sen} x)$		$y' = \dfrac{\cos x}{\operatorname{sen} x}$	$y' = \operatorname{cotg} x$
11) $y = \dfrac{1+\cos 2x}{1-\cos 2x}$		$y' = \dfrac{2(-\operatorname{sen} 2x)\cdot(1-\cos 2x) - 2(-1)(-\operatorname{sen} 2x)(1+\cos 2x)}{(1-\cos 2x)^2}$	$y' = \dfrac{-4\operatorname{sen} 2x}{(1-\cos 2x)^2}$
12) $y = \operatorname{arc tg}\left(\dfrac{1}{x}\right)$		$y' = \dfrac{-1/x^2}{1+(1/x)^2} = -\dfrac{x^2}{x^2\left(x^2+1\right)}$	$y' = \dfrac{-1}{x^2+1}$

Ejemplo 8

Dada la función $f(x)$	la reescribimos...	hallamos su derivada...	y la simplificamos...
01) $y = \operatorname{sen}^2 x + 3\cos^5(2x)$			$y' = 2\cos x\operatorname{sen} x - 30\cos^4(2x)\operatorname{sen}(2x)$
02) $y = \operatorname{tg}\sqrt{x}$		$y' = \sec^2\sqrt{x}\cdot\dfrac{1}{2\sqrt{x}}$	$y' = \dfrac{\sec^2\sqrt{x}}{2\sqrt{x}}$
03) $y = \operatorname{sen}(3x+1)\cdot\cos(3x+1)$		$y' = 3\cos(3x+1)\cdot\cos(3x+1) - 3\operatorname{sen}(3x+1)\cdot\operatorname{sen}(3x+1)$	$y' = 3\left[\cos^2(3x+1) - \operatorname{sen}^2(3x+1)\right]$
04) $y = e^{-x}\cos(3x)$		$y' = -e^{-x}\cos(3x) + (-\operatorname{sen}(3x)\cdot 3)e^{-x}$	$y' = -e^{-x}\left(3\operatorname{sen}(3x) + \cos(3x)\right)$
05) $y = \operatorname{sen} x^3 + 2\cos^3(2x)$		$y' = \cos x^3\cdot 3x^2 + 2\cdot 3\cdot\cos^2(2x)\cdot(-\operatorname{sen}(2x))\cdot 2$	$y' = 3x^2\cos x^3 - 12\cos^2(2x)\operatorname{sen}(2x)$
06) $y = \dfrac{\operatorname{sen}(x^2+1)}{\sqrt{1-x^2}}$		$y' = \dfrac{2x\cos(x^2+1)\sqrt{1-x^2} + \dfrac{x\operatorname{sen}(x^2+1)}{\sqrt{1-x^2}}}{1-x^2}$	$y' = \dfrac{2x(1-x^2)\cos(x^2+1) + x\operatorname{sen} x^2 + 1}{\sqrt{\left(1-x^2\right)^3}}$
07) $y = \operatorname{sen}^4 x$	$y = (\operatorname{sen} x)^4$	$y' = 4(\operatorname{sen} x)^3\cdot\cos x$	
08) $y = \dfrac{\pi}{x^2} + e - \ln 2$		$y' = \dfrac{-2x\pi}{x^4}$	$y' = \dfrac{-2\pi}{x^3}$
09) $y = \cos x\cdot e^x$		$y' = (-\operatorname{sen} x)\cdot e^x + e^x\cdot\cos x$	$y' = e^x(\cos x - \operatorname{sen} x)$
10) $y = x^3\cdot\operatorname{sen} x$		$y' = 3x^2\operatorname{sen} x + \cos x\cdot x^3$	$y' = x^2(3\operatorname{sen} x + x\cos x)$
11) $y = \cos(5x)$		$y' = -\operatorname{sen}(5x)\cdot 5$	$y' = -5\operatorname{sen}(5x)$
12) $y = \dfrac{1}{x+1} - \dfrac{x+2}{x^2-1}$	$y = \dfrac{-3}{x^2-1}$	$y' = \dfrac{-(2x)(-3)}{x^2-1}$	$y' = \dfrac{6x}{\left(x^2-1\right)^2}$
13) $y = \dfrac{2x+1}{x^2+x-12}$		$y = \dfrac{2(x^2+x-12) - (2x+1)(2x+1)}{\left(x^2+x-12\right)^2}$	$y' = -\dfrac{2x^2+2x+25}{\left(x^2+x-12\right)^2}$
14) $y = \dfrac{5x^2+3}{\left(4x^3+2x\right)^2}$		$y' = \dfrac{10x\left(4x^3+2x\right)^2 - 2\left(4x^3+2x\right)(12x^2+2)(5x^2+3)}{\left(4x^3+2x\right)^4}$	$y' = -\dfrac{20x^4+18x^2+3}{2x^3\left(2x^2+1\right)^3}$

Ejemplo 9

Dada la función $f(x)$	la reescribimos...	hallamos su derivada...	y la simplificamos...
01) $y = \operatorname{sen}\left(x^2 - 5x + 7\right)$		$y' = \cos\left(x^2 - 5x + 7\right)\cdot\left(2x - 5\right)$	$y' = \left(2x - 5\right)\cdot\cos\left(x^2 - 5x + 7\right)$
02) $y = \sqrt[3]{\left(5x + 3\right)^2}$	$y = \left(5x + 3\right)^{\frac{2}{3}}$	$y' = \dfrac{2}{3}\left(5x + 3\right)^{-\frac{1}{3}}\cdot 5$	$y' = \dfrac{10}{3\sqrt[3]{5x + 3}}$
03) $y = \dfrac{\ln x^2}{x}$		$y' = \dfrac{\dfrac{2x}{x^2}\cdot x - \ln x}{x^2}$	$y' = \dfrac{2 - \ln x^2}{x^2}$
04) $y = \cos\left(3x - \pi\right)$		$y' = -\operatorname{sen}\left(3x - \pi\right)\cdot 3$	$y' = 3\operatorname{sen}\left(3x\right)$
05) $y = \sqrt{1 + 2x}$		$y' = \dfrac{1}{\sqrt{1 + 2x}}$	
06) $y = xe^{2x+1}$		$y' = e^{2x+1} + e^{2x+1}\cdot 2x$	$y' = e^{2x}\left(e + 2ex\right)$
07) $y = \ln\left(3x - 1\right)$		$y' = \dfrac{3}{3x - 1}$	
08) $y = e^{2x}\cdot \ln\left(x^2 + 1\right)$		$y' = e^{2x}\cdot 2\cdot\ln\left(x^2 + 1\right) + \dfrac{2x}{x^2 + 1}\cdot e^{2x}$	$y' = 2e^{2x}\left[\ln\left(x^2 + 1\right) + \dfrac{x}{x^2 + 1}\right]$
09) $y = x\cdot 2^{x+1}$		$y' = 2^{x+1} + x2^{x+1}\ln 2$	$y' = 2^x\left(2 + 2x\ln 2\right)$
10) $y = 7^{x+1}$		$y' = 7^{x+1}\ln 7$	
11) $y = \sqrt[5]{\left(x + 6\right)^2}$	$y = \left(x + 6\right)^{\frac{2}{5}}$	$y' = \dfrac{2}{3}\left(x + 6\right)^{-\frac{3}{5}}$	$y' = \dfrac{2}{5\sqrt[5]{\left(x + 6\right)^3}}$
12) $y = \dfrac{-3}{\sqrt{1 - x^2}}$	$y = -3\left(1 - x^2\right)^{-\frac{1}{2}}$	$y' = -3\cdot\left(-\dfrac{1}{\cancel{2}}\right)\left(1 - x^2\right)^{-\frac{3}{2}}\left(-\cancel{2}x\right)$	$y' = \dfrac{-3x}{\sqrt{\left(1 - x^2\right)^3}}$
13) $y = \ln\sqrt{xe}$		$y' = \dfrac{1}{2x}$	

Ejemplo 10

Dada la función $f(x)$	la reescribimos...	hallamos su derivada...	y la simplificamos...
01) $y = \sqrt{\operatorname{sen} x}$	$y = \left(\operatorname{sen} x\right)^{\frac{1}{2}}$	$y' = \dfrac{1}{2}\left(\operatorname{sen} x\right)^{-\frac{1}{2}}\cdot\cos x$	$y' = \dfrac{\cos x}{2\sqrt{\operatorname{sen} x}}$
02) $y = \operatorname{sen}^2 x^2$	$y = \left(\operatorname{sen} x^2\right)^2$	$y' = 2\operatorname{sen} x^2\cdot\cos x^2\cdot 2x$	$y' = 4x\cos x^2\operatorname{sen} x^2$
03) $y = \dfrac{\log x}{x}$		$y' = \dfrac{\dfrac{1}{\cancel{x}\ln 10}\cdot\cancel{x} - \log x}{x^2}$	$y' = \dfrac{1 - \ln 10\log x}{x^2\ln 10} = \dfrac{1 - \ln x}{x^2\ln 10}$
04) $y = \dfrac{1}{\cos^2 x}$	$y = \left(\cos x\right)^{-2}$	$y' = -2\left(\cos x\right)^{-3}\cdot\left(-\operatorname{sen} x\right)$	$y' = \dfrac{2\operatorname{sen} x}{\cos^3 x}$
05) $y = \left(x^2 + 1\right)\log_2 x$	$y = \left(x^2 + 1\right)\cdot\dfrac{\ln x}{\ln 2}$	$y' = 2x\cdot\dfrac{\ln x}{\ln 2} + \dfrac{1}{\ln 2}\cdot\dfrac{1}{x}\left(x^2 + 1\right)$	$y' = \dfrac{2x^2\ln x + x^2 + 1}{x\ln 2}$
06) $y = \dfrac{x^2 + 1}{x^2 - 1}$		$y' = \dfrac{2x\left(x^2 - 1\right) - 2x\left(x^2 + 1\right)}{\left(x^2 - 1\right)^2}$	$y' = \dfrac{-4x}{\left(x^2 - 1\right)^2}$
07) $y = \left(1 + e^x\right)^2$		$y' = 2\left(1 + e^x\right)\cdot e^x$	$y' = 2e^x\left(1 + e^x\right)$
08) $y = \ln\sqrt{x}$		$y' = \dfrac{1}{2\sqrt{x}}\Big/\sqrt{x}$	$y' = \dfrac{1}{2x}$
09) $y = \dfrac{e^{2x}}{1 - 5x}$		$y' = \dfrac{2e^x\left(1 - 5x\right) - \left(-5\right)e^{2x}}{\left(1 - 5x\right)^2}$	$y' = \dfrac{e^{2x}\left(7 - 10x\right)}{\left(1 - 5x\right)^2}$
10) $y = \cos\left(x/2\right)$		$y' = -\dfrac{1}{2}\operatorname{sen}\left(x/2\right)$	$y' = \dfrac{-\operatorname{sen}\left(x/2\right)}{2}$