YSTP
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RECURSOS EDUCATIVOS DE **#YSTP**

100 derivadas resueltas

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Con esta primera tabla lo que te ofrecemos son las reglas básicas para derivar. De este modo podemos realizar más fácilmente nuestros ejercicios.

Función	Derivada
Derivada de una constante	
$\mathbf{f(x) = k}$	$f'(x)= 0$
Ejemplos:	
$\mathbf{f(x) = 5}$	$f(x) = 0$
$\mathbf{f(x) = -3}$	$f(x) = 0$
Derivada de x	
$\mathbf{f(x) = x}$	$f'(x)= 1$
Derivadas funciones potenciales	
$\mathbf{f(x) = u^{k}}$	$f'(x) = k.\ u^{k-1}.u'$
Ejemplos	
$\mathbf{f(x) = x^2}$	$f'(x) = 2.x$
$\mathbf{f(x) = x^5}$	$f'(x) = 5.x^4$
$\mathbf{f(x) = 1/x^5 = x^{-5}}$	$f'(x) = -5x^{-6} = -5/\ x^6$
$\boldsymbol{f(x) = \sqrt{x} = x^{\frac{1}{2}}}$	$f'(x) = \frac{1}{2}.x^{-\frac{1}{2}} = \frac{1}{2\sqrt{x}}$
$\boldsymbol{f(x) = (2.x^2 + 3)^2}$	$f'(x) = 2.(2.x^2 + 3).4x$
Derivadas de funciones exponenciales	
$\mathbf{f(x) = e^{u}}$	$f'(x) = u'.\ e^{u}$
$\mathbf{f(x) = a^{u}}$	$f'(x) = u'.\ a^{u}\ .\ Ln\ a$

Ejemplos

f(x) = e^x	f ´(x) = e^x
f(x) = 2^x	f ´(x) =. 2^x . Ln 2

Derivadas de funciones logarítmicas

f(x) = Ln u	f ´(x) = u´ /u
$f(x) = \log_a u$	$f'(x) = \frac{u'}{u}\log_a e$

Ejemplos

f(x) = Ln x	f ´(x) = 1 /x
$f(x) = \log_2 x$	$f'(x) = \frac{1}{x}\log_2 e$

Derivadas de funciones trigonométricas

f(x)= sen u	f ´(x)= u´ . cos u
f(x)= cos u	f ´(x)= - u´ . sen u
f(x)= tg u	f ´(x)= u´ . $\sec^2$ u
f(x) = cotg u	f ´(x)= -u´ . cosec^2 u
f(x) = sec u	f ´(x)= u´ . sec u . tg u
f(x) = cosec u	f ´(x)= - u´ . cosec u . cotg u
f(x) = arcsen u	$f'(x) = \frac{u'}{\sqrt{1 - u^2}}$
f(x) = arccos u	$f'(x) = \frac{-u'}{\sqrt{1 - u^2}}$
f(x) = arctg u	$f'(x) = \frac{u'}{1 + u^2}$

Ejemplos

f(x)= sen x	f ´(x)= cos x
f(x)= cos x	f ´(x)= - sen x
f(x)= tg x	f ´(x)= $\sec^2$ x
f(x) = cot x	f ´(x)= - cosec^2 x
f(x) = sec x	f ´(x)= sec x . tg x
f(x) = cosec x	f ´(x)= - cosec x . cotg x
f(x) = arcsen x	$f'(x) = \frac{1}{\sqrt{1 - \ x^2}}$
f(x) = arccos x	$f'(x) = \frac{-1}{\sqrt{1 - \ x^2}}$
f(x) = arctg x	$f'(x) = \frac{1}{1 + \ x^2}$

Derivadas de sumas, restas, productos y cocientes de funciones

f(x) = K.u	f ´(x) = K.u´
f(x) = u + v -w	f´(x) = u´ + v´ - w´
f(x) = u . v	f´(x) = u´. v + v´. u
f(x) = $\frac{u}{v}$	f´(x) = $\frac{u'.v - v'.u}{v^2}$

Ejemplos

f(x) = $3x^2$	f ´(x) = 3.2.x= 6x
f(x) = $x^4 + x^3$ -2x	f´(x) = $3x^3+3x^2$ - 2
f(x) = x^3 . sen x	f´(x) =$3x^2$.sen x + x^3.cosx

$\mathbf{f(x)} = \dfrac{\boldsymbol{sex}}{\boldsymbol{x^2}}$	$f'(x) = \dfrac{\cos x \,.\, x^2 - \operatorname{sen} x.\, 2x}{x^4}$

A continuación encontrarás una lista con **100 funciones listas para derivar.** No olvides tener en cuenta las reglas vistas anteriormente. Intenta, en la medida de lo posible, simplificar.

1	$f(x) = 0$	
2	$f(x) = -7$	
3	$f(x) = -7x$	
4	$f(x) = -5x+2$	
5	$f(x) = x^5 - x^3 + 3$	
6	$f(x) = 2x^7 - 3x^6 + 3x^3 - 4x^2 - 7$	
7	$f(x) = \frac{x-3}{2}$	
8	$f(x) = -\frac{x^3+x-1}{2}$	
9	$f(x) = -\frac{3}{2}x^3 + \frac{2}{5}x^2 - 4$	
10	$f(x) = \frac{3}{x^2}$	
11	$f(x) = -\frac{2}{x^3} + \frac{3}{x^2} - 4x$	
12	$f(x) = \frac{x^2-1}{(x+1)^2}$	
13	$f(x) = \frac{5x^4 - 3x^3}{x5}$	
14	$f(x) = \sqrt{x^3}$	
15	$f(x) = \frac{1}{\sqrt{x^3}}$	
16	$f(x) = \sqrt{x^3} - \sqrt[3]{x^5}$	
17	$f(x) = -3\sqrt{x} - 2\sqrt[3]{x^2}$	
18	$f(x) = -\frac{2}{3}\sqrt{x^3} - \sqrt{15x} - \sqrt[3]{x^5}$	
19	$f(x) = -\frac{3}{2}\sqrt{x^3} - 2x^5 - 5x^2$	
20	$f(x) = \frac{\sqrt{x}\sqrt[3]{x}}{\sqrt[2]{x}}$	

21	$\mathbf{f(x)} = \frac{2\sqrt{x}+\sqrt[3]{x}}{\sqrt[2]{x}}$	
22	$\mathbf{f(x)} = \left(x^5 - x^3 + 3\right)^4$	
23	$\mathbf{f(x)} = (x^2 - 2)^2$	
24	$\mathbf{f(x)} = (x - 1).(x + 1)^2$	
25	$\mathbf{f(x)} = \left(x^5 - x^3 + 3\right)^4$	
26	$\mathbf{f(x)} = \sqrt{\left((x^5 - x^3 + 3)\right)}$	
27	$\mathbf{f(x)} = \sqrt[5]{x^5 - x^3 + 3}$	
28	$\mathbf{f(x)} = \frac{1}{\sqrt[5]{x5 - x3 + 3}}$	
29	$\mathbf{f(x)} = \sqrt[3]{\frac{x5 - x3 + 3}{x^2}}$	
30	$\mathbf{f(x)} = \sqrt[5]{\frac{x^2+x}{x+1}}$	
31	$\mathbf{f(x)} = \sqrt{\frac{x^2+2x+1}{x^2-1}}$	
32	$\mathbf{f(x)} = \sqrt{\frac{x^2-1}{x^2-2x+1}}$	
33	$\mathbf{f(x)} = e^{x+1}$	
34	$\mathbf{f(x)} = -3.e^{x+1}$	
35	$\mathbf{f(x)} = 7.e^{x^2+1}$	
36	$\mathbf{f(x)} = -3.e^{x^2+x-1}$	
37	$\mathbf{f(x)} = \sqrt{e^x}$	
38	$\mathbf{f(x)} = \sqrt{3e^{x+1}}$	

39	$f(x) = -\frac{2}{\sqrt{e^x}}$	
40	$f(x) = e^{x+1} - 3e^x + 2e^{x^3}$	
41	$f(x) = 3^{2x+1}$	
42	$f(x) = 7^{x-1}$	
43	$f(x) = 7^{x^2-1}$	
44	$f(x) = -\frac{1}{\sqrt{2^x}}$	
45	$f(x) = 2^{x+1} - 3.5^x$	
46	$f(x) = (2^{x+1} - 3.5^x)^3$	
47	$f(x) = \sqrt{3^{x+1}}$	
48	$f(x) = 7^{\sqrt{x+1}}$	
49	$f(x) = \frac{e^{3x}+e^{x^2}}{3}$	
50	$f(x) = \frac{7^{x^2}}{x^3}$	
51	$f(x) = \frac{e^{x^2}}{x^3}$	
52	$f(x) = \sqrt{\frac{7^{x^2}}{x^3}}$	
53	$f(x) = \ln(x+3)$	
54	$f(x) = 7x + \ln(x-3)$	
55	$f(x) = \ln(x^2 - 3x + 2)$	
56	$f(x) = \frac{1}{\ln(x-1)}$	
57	$f(x) = \ln\sqrt{\frac{x^2-1}{x^2-2x+1}}$	

58	$f(x)=\ln\left(\sqrt{((x^5-x^3+3))}\right)$	
59	$f(x)=\ln\left(\frac{e^x-1}{e^x+1}\right)$	
60	$f(x)=\log_3(x+2)$	
61	$f(x)=\log(x-3)^2$	
62	$f(x)=\operatorname{sen}(x+1)$	
63	$f(x)=\operatorname{sen}(2x^3+2x^2)^2$	
64	$f(x)=\operatorname{sen}(x+1)+5x$	
65	$f(x)=\sqrt{(\operatorname{sen}(x+1))}$	
66	$f(x)=\cos(3x+3)$	
67	$f(x)=\cos(3x^2+3x)$	
68	$f(x)=\frac{1}{\operatorname{sen}(x+1)}$	
69	$f(x)=\frac{1}{\cos x}+\frac{1}{\operatorname{sen}(x+1)}$	
70	$f(x)=\frac{1}{\operatorname{sen} x}-\frac{1}{\cos(x-1)}$	
71	$f(x)=\sqrt[3]{\cos(3x+3)}$	
72	$f(x)=\frac{1}{\operatorname{sen}(x+1)}+(x^5-x^3+3)^4$	
73	$f(x)=\ln(x-1)+e^{x+1}$	
74	$f(x)=e^{x-3}+\cos(x+1)-x^2$	
75	$f(x)=\tan(x-5)$	
76	$f(x)=\tan(x^3+3)$	

77	$f(x) = -\tan(-5x^2 - 7)$	
78	$f(x) = \frac{1}{\tan(x-5)}$	
79	$f(x) = -\frac{3}{\tan(x+2)}$	
80	$f(x) = \sqrt{(\tan(x-5))}$	
81	$f(x) = \text{arcsen}(x^2 - 3)$	
82	$f(x) = 3x + \text{arcsen}(3x^3 + 3x - 7)$	
83	$f(x) = \text{arcsen}\sqrt{(x^2 - 3)}$	
84	$f(x) = \text{arcsen}\left(\frac{x+1}{x-1}\right)$	
85	$f(x) = \sqrt[3]{\text{sen}(x^2 + 3)}$	
86	$f(x) = \sqrt[3]{\tan e^x}$	
87	$f(x) = x^2 . \tan \sqrt{x}$	
88	$f(x) = \frac{1+sen^2 x}{x}$	
89	$f(x) = \ln(\text{sen}\, x)$	
90	$f(x) = \text{arctg}\,(x^2 - 3)$	
91	$f(x) = e^{x^2} - 3\ \ln(\sin x)$	
92	$f(x) = e^{x+3} + ln\,(x-5) - \cot(x)$	
93	$f(x) = \text{arctg}(\ln x)$	
94	$f(x) = \ln(\ln x)$	
95	$f(x) = \ln(\ln x) + arctg(x^3 - 1)$	
96	$f(x) = \cot(x^3 - 1)$	

97	$\mathbf{f(x) = \sec x - e^x}$	
98	$\mathbf{f(x) = \operatorname{cosec} x + \frac{x^3}{3}}$	
99	$\mathbf{f(x) = \cot (x+1)}$	
100	$\mathbf{f(x) = e^{x^2} - \cot (x^3 - 1)}$	

Encuentra todas las derivadas resueltas a continuación:

1	$f(x) = 0$	$f'(x) = 0$
2	$f(x) = -7$	$f'(x) = 0$
3	$f(x) = -7x$	$f'(x) = -7$
4	$f(x) = -5x+2$	$f'(x) = -5$
5	$f(x) = x^5 - x^3 + 3$	$f'(x) = 5x^4 - 3x^2$
6	$f(x) = 2x^7 - 3x^6 + 3x^3 - 4x^2 - 7$	$f'(x) = 14x^6 - 18x^{5+} 9x^2 - 8x$
7	$f(x) = \frac{x-3}{2}$	$f(x) = \frac{x}{2} - \frac{3}{2}$ $f'(x) = \frac{1}{2}$
8	$f(x) = -\frac{x^3+x-1}{2}$	$f(x) = -\frac{x^3}{2} - \frac{x}{2} + \frac{1}{2}$ $f'(x) = -\frac{3x^2}{2} - \frac{1}{2}$
9	$f(x) = -\frac{3}{2}x^3 + \frac{2}{5}x^2 - 4$	$f'(x) = -\frac{9}{2}x^2 + \frac{4}{5}x$
10	$f(x) = \frac{3}{x^2}$	$f(x) = 3.x^{-2}$ $f'(x) = -6x^{-3} = \frac{-6}{x^3}$
11	$f(x) = -\frac{2}{x^3} + \frac{3}{x^2} - 4x$	$f(x) = -2.x^{-3} + 3.x^{-2} - 4x$ $f'(x) = +6.x^{-4} - 6.x^{-3} - 4$ $f'(x) = \frac{6}{x^4} - \frac{6}{x^3} - 4$

12	$\mathbf{f(x)=\frac{x^2-1}{(x+1)^2}}$	$f(x)=\frac{(x+1)\ .(x-1)}{(x+1)\ .(x+1)}$ $f(x)=\frac{(x-1)}{(x+1)}$ $f'(x)=\frac{(x-1)'\ .(x+1)\ -(x-1)\ .(x+1)'}{(x+1)^2}$ $f'(x)=\frac{(x+1)\ -(x-1)}{(x+1)^2}=\frac{x+1-x+1}{(x+1)^2}=\frac{2}{(x+1)^2}$ $\mathbf{f'(x)=\frac{2}{(x+1)^2}}$
13	$\mathbf{f(x)=\frac{5x^4-3x^3}{x5}}$	$f(x)=+5\frac{x^4}{x^5}-3\frac{x^3}{x^5}$ $f'(x)=+5x^{4-5}-3x^{3-5}$ $f(x)=+5x^{-1}-3x^{-2}$ $f'(x)=-5x^{-2}+6x^{-3}$ $\mathbf{f'(x)=-\frac{5}{x^2}+\frac{6}{x^3}}$
14	$\mathbf{f(x)=\sqrt{x^3}}$	$f(x)=x^{\frac{3}{2}}$ $f'(x)=\frac{3}{2}x^{\frac{3}{2}\ -\frac{2}{2}}$ $f'(x)=\frac{3}{2}x^{\frac{1}{2}}$ $\mathbf{f'(x)=\frac{3}{2}\sqrt[2]{x}}$

15	$\mathbf{f(x) = \frac{1}{\sqrt{x^3}}}$	$f(x) = \frac{1}{x^{\frac{3}{2}}}$ $f(x) = x^{-\frac{3}{2}}$ $f'(x) = -\frac{3}{2}x^{-\frac{3}{2}\ -\frac{2}{2}}$ $f'(x) = -\frac{3}{2}x^{-\frac{5}{2}}$ $f'(x) = -\frac{3}{2}\frac{1}{\sqrt[2]{x^5}}$ $\mathbf{f'(x) = -\frac{3}{2}\frac{1}{x^2\sqrt[2]{x}}}$
16	$\mathbf{f(x) = \sqrt{x^3} - \sqrt[3]{x^5}}$	$f(x) = x^{\frac{3}{2}} - x^{\frac{5}{3}}$ $f'(x) = \frac{3}{2}.x^{\frac{3}{2}-\frac{2}{2}} - \frac{5}{3}x^{\frac{5}{3}-\frac{3}{3}}$ $f'(x) = \frac{3}{2}.x^{\frac{1}{2}} - \frac{5}{3}x^{\frac{2}{3}}$ $\mathbf{f'(x) = \frac{3}{2}.\sqrt{x} - \frac{5}{3}\sqrt[3]{x^2}}$
17	$\mathbf{f(x) = -3\sqrt{x} - 2\sqrt[3]{x^2}}$	$f(x) = -3x^{\frac{1}{2}} - 2x^{\frac{2}{3}}$ $f'(x) = -\frac{3}{2}x^{\frac{1}{2}-\frac{2}{2}} - \frac{4}{3}x^{\frac{2}{3}-\frac{3}{3}}$ $f'(x) = -\frac{3}{2}.x^{-\frac{1}{2}} - \frac{4}{3}x^{-\frac{1}{3}}$ $\mathbf{f'(x) = \frac{-3}{2\sqrt{x}} - \frac{4}{3\sqrt[3]{x}}}$

18	$\mathbf{f(x) = -\frac{2}{3}\sqrt{x^3} - \sqrt{15x} - \sqrt[3]{x^5}}$	$f(x) = -\frac{2}{3}x^{\frac{3}{2}} - 15^{\frac{1}{2}}x^{\frac{1}{2}} - x^{\frac{5}{3}}$ $f'(x) = -\frac{2}{3}.\frac{3}{2}x^{\frac{3}{2}-\frac{2}{2}} - \sqrt{15}\frac{1}{2}x^{\frac{1}{2}-\frac{2}{2}} - \frac{5}{3}x^{\frac{5}{3}-\frac{3}{3}}$ $f'(x) = -.x^{\frac{1}{2}} - \sqrt{15}\frac{5}{3}x^{-\frac{1}{2}} - x^{\frac{2}{3}}$ $\mathbf{f'(x) = -\sqrt{x} - \frac{\sqrt{15}}{2\sqrt{x}} - \frac{5}{3}\sqrt[3]{x^2}}$
19	$\mathbf{f(x) = -\frac{3}{2}\sqrt{x^3} - 2x^5 - 5x^2}$	$f(x) = -\frac{3}{2}x^{\frac{3}{2}} - 2x^5 - 5x^2$ $f'(x) = -\frac{3}{2}.\frac{3}{2}x^{\frac{1}{2}} - 10x^4 - 10x$ $\mathbf{f'(x) = -\frac{9}{4}\sqrt{x} - 10x^4 - 10x}$
20	$\mathbf{f(x) = \frac{\sqrt{x}\sqrt[3]{x}}{\sqrt[2]{x}}}$	$\mathbf{f(x) = \frac{\sqrt{x}\sqrt[3]{x}}{\sqrt[2]{x}} = \frac{x^{\frac{1}{2}}.x^{\frac{1}{3}}}{x^{\frac{1}{2}}} = \frac{x^{\frac{1}{2}+\frac{1}{3}}}{x^{\frac{1}{2}}} = \frac{x^{\frac{5}{6}}}{x^{\frac{1}{2}}}}$ $\mathbf{f(x) = x^{\frac{5}{6}-\frac{1}{2}} = x^{\frac{2}{6}}}$ $f'(x) = \frac{2}{6}.x^{-\frac{4}{6}} = \frac{2}{6}.x^{-\frac{2}{3}}$ $\mathbf{f'(x) = \frac{1}{3\sqrt[3]{x^2}}}$

21	$\mathbf{f(x) = \frac{2\sqrt{x}+\sqrt[3]{x}}{\sqrt[2]{x}}}$	$f(x) = \frac{2\sqrt{x}+\sqrt[3]{x}}{\sqrt[2]{x}} = \frac{2\sqrt{x}}{\sqrt[2]{x}} + \frac{\sqrt[3]{x}}{\sqrt[2]{x}}$ $f(x) = \frac{2.x^{\frac{1}{2}}}{x^{\frac{1}{2}}} + \frac{x^{\frac{1}{3}}}{x^{\frac{1}{2}}}$ $f(x) = 2 + x^{-\frac{1}{6}}$ $f'(x) = -\frac{1}{6}x^{-\frac{7}{6}}$ $\mathbf{f'(x) = -\frac{1}{6x\sqrt[6]{x}}}$
22	$\mathbf{f(x) = (x^5 - x^3 + 3)^4}$	$f'(x) = \mathbf{4.(x^5 - x^3 + 3)^3.(5x^4 - 3x^2)}$
23	$\mathbf{f(x) = (x^2 - 2)^2}$	$f'(x) = 2.(x^2 - 2).(2x)$ $f'(x) = 4x.(x^2 - 2)$ $\mathbf{f'(x) = 4x^3 - 8x}$
24	$\mathbf{f(x) = (x - 1).(x + 1)^2}$	$f'(x) = (x + 1)^2 + (x - 1).2.(x + 1)$ $f'(x) = x^2 + 2x + 1 + 2x^2 - 2$ $\mathbf{f'(x) = 3x^2 + 2x - 1}$
25	$\mathbf{f(x) = (x^5 - x^3 + 3)^4}$	$\mathbf{f(x) = (x^5 - x^3 + 3)^4}$ $\mathbf{f'(x) = 4.(x^5 - x^3 + 3)^3.(5x^4 - 3x^2)}$

26	$\mathbf{f(x) = \sqrt{((x^5 - x^3 + 3))}}$	$f(x) = \left((x^5 - x^3 + 3)\right)^{\frac{1}{2}}$ $f'(x) = \frac{1}{2}\left((x^5 - x^3 + 3)\right)^{-\frac{1}{2}}.(5x^4 - 3x^2)$ $\mathbf{f'(x) = \frac{(5x^4 - 3x^2)}{2.\sqrt{x^5 - x^3 + 3}}}$
27	$\mathbf{f(x) = \sqrt[5]{x^5 - x^3 + 3}}$	$f(x) = \left((x^5 - x^3 + 3)\right)^{\frac{1}{5}}$ $f'(x) = \frac{1}{5}\left((x^5 - x^3 + 3)\right)^{-\frac{4}{5}}.(5x^4 - 3x^2)$ $\mathbf{f'(x) = \frac{(5x^4 - 3x^2)}{5.\sqrt[5]{(x^5 - x^3 + 3)^4}}}$
28	$\mathbf{f(x) = \frac{1}{\sqrt[5]{x5 - x3 + 3}}}$	$f(x) = \left((x^5 - x^3 + 3)\right)^{-\frac{1}{5}}$ $f'(x) = -\frac{1}{5}\left((x^5 - x^3 + 3)\right)^{-\frac{6}{5}}.(5x^4 - 3x^2)$ $\mathbf{f'(x)}$ $= -\frac{(5x^4 - 3x^2)}{5.\sqrt[5]{(x^5 - x^3 + 3)^6}} = -\frac{(5x^4 - 3x^2)}{5.(x^5 - x^3 + 3)\sqrt[5]{(x^5 - x^3 + 3)}}$

29	$\mathbf{f(x)=\sqrt[3]{\frac{x5\ -x3+3}{x^2}}}$	$f(x)=\left(\left(\frac{\mathbf{x5\ -x3+3}}{\boldsymbol{x^2}}\right)\right)^{\frac{1}{3}}$ $f'(x)$ $=\frac{1}{3\sqrt[3]{\left(\frac{x5\ -x3+3}{x^2}\right)^2}}.\frac{(5.x^4-3x^2).x^2-(\mathbf{x5\ -x3+3}).\mathbf{2x}}{x^4}$ $=\frac{1}{3\sqrt[3]{\left(\frac{x5\ -x3+3}{x^2}\right)^2}}.\frac{(3.x^5-x^3-6)}{x^3}$
30	$\mathbf{f(x)=\sqrt[5]{\frac{x^2+x}{x+1}}}$	$f(x)=\sqrt[5]{\frac{x^2+x}{x+1}}=\sqrt[5]{\frac{x.(x+1)}{x+1}}=\sqrt[5]{x}$ $f'(x)=\frac{1}{5\sqrt[5]{x^4}}$
31	$\mathbf{f(x)=\sqrt{\frac{x^2+2x+1}{x^2-1}}}$	$f(x)=\sqrt{\frac{x^2+2x+1}{x^2-1}}=\sqrt{\frac{(x+1).(x+1)}{(x+1).(x-1)}}=\sqrt{\frac{(x+1)}{(x-1)}}$ $f'(x)=\frac{1}{2\sqrt{\frac{(x+1)}{(x-1)}}}\frac{x-1-x-1}{(x-1)^2}=-\frac{1}{\sqrt{\frac{(x+1)}{(x-1)}}}\frac{1}{(x-1)^2}=-\frac{1}{\sqrt{x^2-1}}$ $\frac{1}{(x-1)}$ $f'(x)=\frac{-1}{\sqrt{x^2-1}.(x-1)}$

32	$\mathbf{f(x)=\sqrt{\frac{x^2-1}{x^2-2x+1}}}$	$f(x)=\sqrt{\frac{x^2-1}{x^2-2x+1}}=\sqrt{\frac{(x+1).(x-1)}{(x-1).(x-1)}}=\sqrt{\frac{(x+1)}{(x-1)}}$ $f'(x)=\frac{1}{2\sqrt{\frac{(x+1)}{(x-1)}}}\frac{x-1-x-1}{(x-1)^2}=-\frac{1}{\sqrt{\frac{(x+1)}{(x-1)}}}\frac{1}{(x-1)^2}=-\frac{1}{\sqrt{x^2-1}}$ $\frac{1}{(x-1)}$ $\mathbf{f'(x)=\frac{-1}{\sqrt{x^2-1}.(x-1)}}$
33	$\mathbf{f(x)=e^{x+1}}$	$\mathbf{f'(x)=e^{x+1}}$
34	$\mathbf{f(x)=-3.e^{x+1}}$	$\mathbf{f'(x)=-3.e^{x+1}}$
35	$\mathbf{f(x)=7.e^{x^2+1}}$	$\mathbf{f'(x)=7.e^{x^2+1}.2x=14x.e^{x^2}}$
36	$\mathbf{f(x)=-3.e^{x^2+x-1}}$	$\mathbf{f'(x)=-3.(2x+1)e^{x^2+x-1}}$
37	$\mathbf{f(x)=\sqrt{e^x}}$	$\mathbf{f'(x)=\frac{e^x}{2\sqrt{e^x}}}$
38	$\mathbf{f(x)=\sqrt{3e^{x+1}}}$	$\mathbf{f'(x)=\frac{3e^{x+1}}{2\sqrt{3e^{x+1}}}}$
39	$\mathbf{f(x)=-\frac{2}{\sqrt{e^x}}}$	$f(x)=-2.(e^x)^{-\frac{1}{2}}$ $f'(x)=\frac{+2}{2}.(e^x)^{-\frac{3}{2}}.e^x$ $\mathbf{f'(x)=\frac{1}{\sqrt{e^x}}}$
40	$\mathbf{f(x)=e^{x+1}-3e^x+2e^{x^3}}$	$\mathbf{f'(x)=e^{x+1}-3e^x+6x^2e^{x^3}}$
41	$\mathbf{f(x)=3^{2x+1}}$	$\mathbf{f'(x)=3^{2x+1}.\ln 3.2}$
42	$\mathbf{f(x)=7^{x-1}}$	$\mathbf{f'(x)=7^{x-1}.\ln 7}$

43	$\mathbf{f(x) = 7^{x^2-1}}$	$\mathbf{f'(x) = 7^{x^2-1}.\ln 7\,.\,2x}$
44	$\mathbf{f(x) = -\frac{1}{\sqrt{2^x}}}$	$\mathbf{f(x) = -\,(2^x)^{-\frac{1}{2}}}$ $f'(x) = \frac{1}{2}(2^x)^{-\frac{3}{2}} \ln 2\, 2^x$ $\mathbf{f'(x) = \frac{\ln 2}{2\sqrt{2^x}}}$
45	$\mathbf{f(x) = 2^{x+1} - 3.5^x}$	$\mathbf{f'(x) = 2^{x+1}.\ln 2 - 3.(5^x.\ln 5)}$
46	$\mathbf{f(x) = (2^{x+1} - 3.5^x)^3}$	$\mathbf{f'(x) = 3.(2^{x+1} - 3.5^x)^2.(2^{x+1}.\ln 2 - 3.(5^x.\ln 5))}$
47	$\mathbf{f(x) = \sqrt{3^{x+1}}}$	$f(x) = (3^{x+1})^{\frac{1}{2}}$ $f'(x) = \frac{1}{2}.(3^{x+1})^{-\frac{1}{2}}.3^{x+1}.\ln 3$ $\mathbf{f'(x) = \frac{3^{x+1}\ln 3}{2\sqrt{3^{x+1}}}}$
48	$\mathbf{f(x) = 7^{\sqrt{x+1}}}$	$\mathbf{f'(x) = 7^{\sqrt{x+1}}.\ln 7.\frac{1}{2\sqrt{x+1}}}$
49	$\mathbf{f(x) = \frac{e^{3x}+e^{x^2}}{3}}$	$f'(x) = \frac{e^{3x}.3}{3} + \frac{e^{x^2}.2x}{3}$ $\mathbf{f'(x) = e^{3x} + \frac{e^{x^2}.2x}{3}}$

50	$\mathbf{f(x) = \frac{7^{x^2}}{x^3}}$	$f'(x)=\frac{7^{x^2}.\ln 7.2x.x^3-7^{x^2}.3x^2}{x^6}$ $f'(x)=\frac{7^{x^2}.(\ln 7.2.x^2-3)}{x^4}$
51	$\mathbf{f(x) = \frac{e^{x^2}}{x^3}}$	$f'(x)=\frac{e^{x^2}.2x.x^3-e^{x^2}.3x^2}{x^6}=\frac{x^2(e^{x^2}.2.x^2-e^{x^2}.3)}{x^6}=$ $\frac{(e^{x^2}.2.x^2-e^{x^2}.3)}{x^4}$ $f'(x)=\frac{e^{x^2}.(2.x^2-3)}{x^4}$
52	$\mathbf{f(x) = \sqrt{\frac{7^{x^2}}{x^3}}}$	$f'(x)=\frac{1}{2.\sqrt{\frac{7^{x^2}}{x^3}}}.\frac{7^{x^2}.\ln 7.2x.x^3-7^{x^2}.3x^2}{x^6}$
53	$\mathbf{f(x) = \ln(x+3)}$	$f'(x)=\frac{1}{x+3}$
54	$\mathbf{f(x) = 7x + \ln(x-3)}$	$f'(x)=7+\frac{1}{x-3}$
55	$\mathbf{f(x) = \ln(x^2-3x+2)}$	$f'(x)=\frac{1}{x^2-3x+2}.(2x-3)$
56	$\mathbf{f(x) = \frac{1}{\ln(x-1)}}$	$f'(x)=\frac{-\frac{1}{(x-1)}}{(\ln(x-1))^2}=-\frac{1}{(x-1)((\ln(x-1))^2)}$

57	$\mathbf{f(x) = \ln \sqrt{\frac{x^2-1}{x^2-2x+1}}}$	$f(x) = \ln \sqrt{\frac{x^2\text{-}1}{x^2-2x+1}} =$ $\ln \sqrt{\frac{(x\text{-}1).(x+1)}{(x\text{-}1).(x\text{-}1)}} = \ln \sqrt{\frac{(x+1)}{(x\text{-}1)}}$ $f'(x) = \frac{1}{\sqrt{\frac{(x+1)}{(x\text{-}1)}}} \cdot \frac{1}{2\sqrt{\frac{(x+1)}{(x\text{-}1)}}} \frac{x\text{-}1\text{-}x\text{-}1}{(x\text{-}1)^2} = ..$ $\frac{-2}{\frac{(x+1)}{(x\text{-}1)}.2.(x\text{-}1)^2} = -\frac{1}{x^2\text{-}1}$ $\mathbf{f'(x) = -\frac{1}{x^2-1}}$
58	$\mathbf{f(x) = \ln\left(\sqrt{((x^5 - x^3 + 3))}\right)}$	$f'(x) = \frac{1}{\sqrt{(x^5 - x^3+3)}} \cdot \frac{1}{2\sqrt{(x^5 - x^3+3)}} (5x^4\text{-}3x^2)$ $\mathbf{f'(x) = \frac{5x^4-3x^2}{(x^5 - x^3+3)}}$
59	$\mathbf{f(x) = \ln\left(\frac{e^x-1}{e^x+1}\right)}$	$f'(x) = \frac{1}{\frac{e^x\text{-}1}{e^x+1}} \cdot \frac{e^x.(e^x+1)\text{-}e^x.(e^x\text{-}1)}{(e^x+1)^2}$ $\mathbf{f'(x) = \frac{+2e^x}{e^{2x}-1}}$
60	$\mathbf{f(x) = \log_3(x+2)}$	$f'(x) = \frac{u'}{u}\log_a e$ $f'(x) = \frac{1}{x+2}\log_3 e$
61	$\mathbf{f(x) = \log(x-3)^2}$	$\mathbf{f'(x) = \frac{2.(x-3)}{(x-3)^2.Ln10}}$
62	$\mathbf{f(x) = sen(x+1)}$	$\mathbf{f'(x) = \cos(x+1)}$

63	$\mathbf{f(x)= \operatorname{sen}(2x^3+2x^2)^2}$	$\mathbf{f'(x)=2.\operatorname{sin}(2x^3+2x^2).\cos(2x^3+2x^2)(6x^2+4x)}$
64	$\mathbf{f(x)= \operatorname{sen}(x+1)+5x}$	$f'(x)=\cos(x+1)+5$
65	$\mathbf{f(x)=\sqrt{(\operatorname{sen}(x+1))}}$	$f(x)=\sin(x+1)^{\frac{1}{2}}$ $f'(x)=\frac{1}{2}\sin(x+1)^{-\frac{1}{2}}.\cos(x+1)$ $\mathbf{f'(x)=\frac{\cos(x+1)}{2.\sqrt{\sin(x+1)}}}$
66	$\mathbf{f(x)= \cos(3x+3)}$	$f'(x)=-\sin(3x+3).3$ $\mathbf{f'(x)=-3\sin(3x+3)}$
67	$\mathbf{f(x)= \cos(3x^2+3x)}$	$f'(x)=-\sin(3x^2+3x).(6x+3)$ $\mathbf{f'(x)=-3.\sin(3x^2+3x).(3x+1)}$
68	$\mathbf{f(x)= \frac{1}{\operatorname{sen}(x+1)}}$	$\mathbf{f'(x)=-\frac{\cos(x+1)}{(\operatorname{sen}(x+1))^2}}$
69	$\mathbf{f(x)= \frac{1}{\cos x}+\frac{1}{\operatorname{sen}(x+1)}}$	$\mathbf{f'(x)=\frac{\operatorname{sen} x}{(\cos x)^2}-\frac{\cos(x+1)}{(\operatorname{sen}(x+1))^2}}$
70	$\mathbf{f(x)= \frac{1}{\operatorname{sen} x}-\frac{1}{\cos(x-1)}}$	$f'(x)=\frac{-\cos x}{(\operatorname{sen} x)^2}-\frac{\operatorname{sen}(x+1)}{(\cos(x-1))^2}$
71	$\mathbf{f(x)=\sqrt[3]{\cos(3x+3)}}$	$f'(x)=\frac{1}{3\sqrt[3]{(\cos(3x+3))^2}}.-\operatorname{sen}(3x+3).3$ $\mathbf{f'(x)=-\frac{\operatorname{sen}(3x+3)}{\sqrt[3]{(\cos(3x+3))^2}}}$

72	$f(x) = \frac{1}{\text{sen}(x+1)} + (x^5 - x^3 + 3)^4$	$f'(x) = -\frac{\cos(x+1)}{(\text{sen}(x+1))^2} + 4.(x^5 - x^3 + 3)^3.(5x^4 - 3x^2)$
73	$f(x) = \ln(x-1) + e^{x+1}$	$f'(x) = \frac{1}{x-1} + e^{x+1}$
74	$f(x) = e^{x-3} + \cos(x+1) - x^2$	$f'(x) = e^{x-3} - \sin(x+1) - 2x$
75	$f(x) = \tan(x-5)$	$f'(x) = \sec^2(x-5)$
76	$f(x) = \tan(x^3+3)$	$f'(x) = \sec^2(x^3+3).3x^2$
77	$f(x) = -\tan(-5x^2-7)$	$f'(x) = -\sec^2(-5x^2-7).-10x$ $f'(x) = \sec^2(-5x^2-7).10x$
78	$f(x) = \frac{1}{\tan(x-5)}$	$f'(x) = \frac{-\sec^2(x-5)}{(\tan(x-5))^2}$
79	$f(x) = -\frac{3}{\tan(x+2)}$	$f'(x) = \frac{3.\sec 2(x-5)}{(\tan(x+2))^2}$
80	$f(x) = \sqrt{(\tan(x-5))}$	$f'(x) = \frac{\sec^2(x-5)}{2.\sqrt{\tan(x-5)}}$
81	$f(x) = \text{arcsen}(x^2-3)$	$f'(x) = \frac{2x}{\sqrt{1-(x^2-3)^2}}$
82	$f(x) = 3x + \text{arcsen}(3x^3+3x-7)$	$f'(x) = 3 + \frac{9.x^2+3}{\sqrt{1-(3x^3+3x-7)^2}}$

83	**f(x)=arcsen$\sqrt{(x^2-3)}$**	$f'(x)=\dfrac{\frac{1}{2\sqrt{x^2-3}}.2x}{\sqrt{1-(x^2-3)}}$ $=\dfrac{x}{\sqrt{(-x^2+4).(x^2-3)}}$
84	**f(x)=arcsen$\left(\frac{x+1}{x-1}\right)$**	$f'(x)$ $=\dfrac{1}{\sqrt{1-\left(\frac{x+1}{x-1}\right)^2}}.\dfrac{x-1-(x+1)}{(x-1)^2}$ $f'(x)$ $=\dfrac{1}{\frac{\sqrt{x^2-2x+1-x^2-2x-1}}{(x-1)}}.\dfrac{-2}{(x-1)^2}$ $f'(x)=\dfrac{-2}{2.(x-1).\sqrt{-x}}$ $f'(x)=\dfrac{-1}{(x-1).\sqrt{-x}}$
85	**f(x)=$\sqrt[3]{sen(x^2+3)}$**	f(x)=$\sqrt[3]{sen(x^2+3)}$=$(sen(x^2+3))^{\frac{1}{3}}$ $f'(x)=\dfrac{\cos(x^2+3).2x}{3.\sqrt[3]{(sen(x^2+3))^2}}$
86	**f(x)=$\sqrt[3]{\tan e^x}$**	$f'(x)=\dfrac{sec^2(e^x).e^x}{3.\sqrt[3]{(\tan(e^x))^2}}$
87	**f(x)=$x^2.\tan\sqrt{x}$**	$f'(x)=2x.\tan\sqrt{x}+x^2.sec^2\sqrt{x}.\frac{1}{2\sqrt{x}}$

88	$f(x)=\frac{1+sen^2x}{x}$	$f'(x)=\frac{-2.senx.cosx}{x^2}$
89	$f(x)=\ln(\text{sen}\,x)$	$f'(x)=\frac{1}{\text{sen}\,x}.\cos x$
90	$f(x)=\text{arctg}\,(x^2-3)$	$f'(x)=\frac{1}{1+(x^2-3)^2}.2x$
91	$f(x)=e^{x^2}-3\ln(\text{sin}\,x)$	$f'(x)=e^{x^2}.2x-3\frac{1}{(\text{sin}\,x)}.\cos x$
92	$f(x)=e^{x+3}+ln\,(x-5)-\text{cot}\,(x)$	$f'(x)=e^{x+3}+\frac{1}{x-5}+\text{cosec}^2\,(x)$
93	$f(x)=\text{arctg}(\ln x)$	$f'(x)=\frac{1}{1+(\ln x))^2}.\frac{1}{x}$
94	$f(x)=\ln(\ln x)$	$f'(x)=\frac{1}{\ln x}.\frac{1}{x}$
95	$f(x)=\ln(\ln x)+arctg(x^3-1)$	$f'(x)=\frac{1}{\ln x}.\frac{1}{x}+\frac{1}{1+(x^3-1)^2}.3x^2$
96	$f(x)=\text{cot}\,(x^3-1)$	$f'(x)=-3.x^2\,.\,\text{cosec}^2\,(x^3-1)$
97	$f(x)=\text{sec}\,x-e^x$	$f'(x)=\text{secx.tg}\,x-e^x$
98	$f(x)=\text{cosec}\,x+\frac{x^3}{3}$	$f'(x)=-\text{cosecx.tg}\,x+x^2$
99	$f(x)=\text{cot}\,(x+1)$	$f'(x)=-\text{cosec}^2\,(x+1)$
100	$f(x)=e^{x^2}-\text{cot}\,(x^3-1)$	$f'(x)=e^{x^2}.2x+3.x^2\,.\,\text{cosec}^2\,(x^3-1)$

Si tienes cualquier duda y quieres ponerte en contacto conmigo, puedes hacerlo escribiéndome a yosoytuprofe.miguel@gmail.com, o bien a través de mis perfiles en redes sociales (Facebook, Twitter, Instagram o YouTube).

Nos vemos en la siguiente clase.