DERIVADAS

D M A

Scribe

① $f(x) = C$
$f'(x) = 0$

$f(x) = 7$
$f'(x) = 0$

② $f(x) = x^2$
$f'(x) = nx^{n-1}$

$f(x) = x^5$
$f'(x) = x^4$

③ $f(x) = cx$
$f'(x) = cf(x) = cf'(x)$

$f(x) = 3x^5$
$f'(x) = 3(5x^4) = 15x^4$

④ $f(x) = f \pm g$
$f' = (f \pm g)' = f' \pm g'$

$f(x) = 2x^3 \pm x$
$f(x) = 6x^2 \pm 1$

Ejercicios

$f(x)$

1) $x^5 = 5x^4$
2) $x^8 = 8x^7$
3) $x^9 = 9x^8$
4) $x^{11} = 11x^{10}$
5) $x^4 = 4x^3$

1) $2x^6 = 12x^5$
2) $4x^2 = 8x$
3) $5x^3 = 15x^2$
4) $6x^4 = 24x^3$
5) $10x^2 = 20x$

1) $4x^3 + 2x = 12x^2 + 2$
2) $6x^2 - 3 = 12x$
3) $2x^4 - x^2 = 8x^3 - 2x$
4) $3x^6 + x = 18x^5 + 1$
5) $x^7 - 3x = 7x^6 - 3$

Regla

$f(x) = f_g + f_g$ $\quad f_{(x)} = (4x + 11) + (10x^2 - 5)$

$f'(x) = f_g' + f'_g$ $\quad f'(x) = 20x(4x+11) + 4(10x^2 - 5)$

1) $(5x^2 + 2) + (3x - 2) = 3(5x^2 + 2) + 10x(3x - 2)$
2) $(7x^3 + 2x) + (2x^2 + 5x) = 4x^2(7x^3 + 2x) + 21x^2(2x^2 + 5x)$
3) $(2x + 10) - (2x^3 - 10) = 6x^2(2x + 10) - 2(2x^3 - 10)$
4) $(8x^4 + 10x) + (6x - 3) = 6(8x^4 + 10) + 32x^3(6x - 3)$
5) $(20x + 2) - (8x^5 + 6) = 40x^4(20x + 2) - 20(8x^5 + 6)$

$f(x) =$

1) $4x^3 + 6x = 12x^2 + 6$
Regla 4
2) $8x^6 = 48x^5 = 8(6x^5)$
Regla 3
3) $7 = f'(x) = 0$
Regla 1
4) $(3x^3 + 2x) + (6x^4 + 6) = 24x^3(3x^3 + 2x) + 4x^3(6x^4 + 6)$
Regla 5
5) $(8x + 2) - (3x^2 - x) = 6x - 1(8x + 2) - 8x(3x^2 - x)$
6) $(7x^3 + 4x) + (6x^3 - 2x^2) = 18x^2(7x^3 + 4x) + 14x^4(6x^3 - 2x^2)$
7) $(2x^3 - 4x^2) + (2x + x) = 2 + 1(2x^3 - 4x^2) + 6x^2 - 8x(2x + x)$
8) $(6x^4 + 2x^5) - (2x^6 + x^5) = 12x^5 + 5x^4(6x^4 + 2x^5) - 24x^3 + 10x^4(2x^6 + x^5)$

Regla

$$(x) = \left(\frac{f}{g}\right)' = \frac{f'g - fg'}{g^2}$$

9) $(3x^3+6) \cdot (8x^2-2x)$

$$16x - 2(3x^3+6) - 15x^4(8x^2-2x)$$

10) $(9x^2+3x) + (x^3+x^2)$

$$3x^2 + 2x(9x^2+3x) + 18x + 3(x^3+x^2)$$