Derivadas	
$f(x)$	$f'(x)$
x^n	nx^{n-1}
$ln(x)$	$\frac{1}{x}$
e^x	e^x
$f(x) + g(x)$	$f'(x) + g'(x)$
$f(x) - g(x)$	$f'(x) - g'(x)$
$f(x).\ g(x)$	$f'(x).\ g(x) + f(x).\ g'(x)$
$\frac{f(x)}{g(x)}$	$\frac{f'(x).\ g(x) - f(x).\ g'(x)}{(g(x))^2}$
$f(g(x))$ (regla de la cadena)	$f'(g(x)).\ g'(x)$

PROPIEDADES DE LA SUMATORIA:

1) $\sum_{i=1}^{n} a \times x_i = a \times x_1 + a \times x_2 + \ldots + a \times x_n = a \times \sum_{i=1}^{n} x_i$

2) $\sum_{i=1}^{n} a = a + a + \ldots + a = a \times \sum_{i=1}^{n} 1 = a \times n$

PROPIEDADES DE LA PRODUCTORIA:

1. $\prod_{i=1}^{n} (a \times x_i) = (a \times x_1) \times (a \times x_2) \times \ldots \times (a \times x_n) = a^n \times \prod_{i=1}^{n} x_i$

2. $\prod_{i=1}^{n} a^{x_i} = a^{x_1} \times a^{x_2} \times \ldots \times a^{x_n} = a^{\sum_{i=1}^{n} x_i}$

PROPIEDADES DEL LOGARITMO NATURAL:

1. $\ln(a \times b) = \ln(a) + \ln(b)$
2. $\ln(a/b) = \ln(a) - \ln(b)$
3. $\ln(a^b) = b \times \ln(a)$
4. $\ln(1) = 0$
5. $\ln(e) = 1$

Observar que:

$$\ln\left(\prod_{i=1}^{n} x_i\right) = \ln(x_1 \times x_2 \times \ldots \times x_n) = \ln(x_1) + \ln(x_2) + \ldots + \ln(x_n) = \sum_{i=1}^{n} \ln(x_i)$$

$$\ln\left(\prod_{i=1}^{n} a^{x_i}\right) = \ln\left(a^{\sum_{i=1}^{n} x_i}\right) = \left(\sum_{i=1}^{n} x_i\right) \times \ln(a) = \ln(a) \times \sum_{i=1}^{n} x_i$$