Dérivées - Fonctions logarithmiques et exponentielles

Chercher les fonctions dérivées des fonctions numériques f définies dans $\mathbb{R}$ par :

$f(x) = xlnx$

$f(x) = lnx^2$

$f(x) = a^{lnx}$

$f(x) = a^{e^x}$

$f(x) = x^{x^x}$

$f(x) = ln\sqrt{1-x^2}$

$f(x) = ln(x+\sqrt{1+x^2})$

$f(x) = ln(\frac{a+x}{a-x})$

$f(x) = ln\sqrt{\frac{1+x}{1-x}}$

$f(x) = ln(lnx)$

$f(x) = ln^2x$

$f(x) = x^x$

$f(x) = ln\frac{\sqrt{x^2+1}-x}{\sqrt{x^2+1}+x}$

$f(x) = e^x(x-1)$

$f(x) = e^x(x^2-2x+2)$

$f(x) = \frac{e^x-1}{e^x+1}$

$f(x) = e^xlnx$

☞ ici les réponses

$f(x) = e^{ln\sqrt{a^2+x^2}}$

$f(x) = \frac{e^x}{1+x}$

$f(x) = ln\frac{x}{\sqrt{x^2+1}+x}$

$f(x) = ln(x+a+\sqrt{2ax+x^2})$

$f(x) = \frac{a^x}{x^x}$

$f(x) = x(a^2+x^2)\sqrt{a^2-x^2}$

$f(x) = (a^x+1)^2$

$f(x) = \frac{a^x-1}{a^x+1}$

$f(x) = lnsinx$

$f(x) = ln(sin^2x)$

$f(x) = lncosx$

$f(x) = lntanx$

$f(x) = lncotx$

$f(x) = ln(\frac{1}{cosx})$

$f(x) = ln(\frac{1}{sinx})$

$f(x) = e^xcosx$

☞ ici les réponses

Réponses :

$$f'(x) = (xlnx)' = lnx + 1$$
$$f'(x) = (lnx^2)' = \frac{2}{x}$$
$$f'(x) = (a^{lnx})' = \frac{a^{lnx}lna}{x}$$
$$f'(x) = (a^{e^x})' = a^{e^x}e^x lna$$
$$f'(x) = (x^{x^x})' = x^{x^x}[lnx(1+lnx) + \frac{1}{x}]x^x$$
$$f'(x) = (ln\sqrt{1-x^2})' = -\frac{x}{1-x^2}$$
$$f'(x) = (ln(x+\sqrt{1+x^2}))' = \frac{1}{\sqrt{1+x^2}}$$
$$f'(x) = (ln(\frac{a+x}{a-x}))' = \frac{2a}{a^2-x^2}$$
$$f'(x) = (ln\sqrt{\frac{1+x}{1-x}})' = \frac{1}{1-x^2}$$
$$f'(x) = (ln(lnx))' = \frac{1}{xlnx}$$
$$f'(x) = (ln^2 x)' = \frac{2lnx}{x}$$
$$f'(x) = (x^x)' = x^x(lnx + 1)$$
$$f'(x) = (ln\frac{\sqrt{x^2+1}-x}{\sqrt{x^2+1}+x})' = \frac{-2}{\sqrt{x^2+1}}$$
$$f'(x) = (e^x(x-1))' = xe^x$$
$$f'(x) = (e^x(x^2-2x+2))' = x^2e^x$$
$$f'(x) = (\frac{e^x-1}{e^x+1})' = \frac{2e^x}{(e^x+1)^2}$$
$$f'(x) = (e^x lnx)'e^x(lnx + \frac{1}{x})$$

☞ **Retour**

Réponses :

$$f'(x) = (e^{ln\sqrt{a^2+x^2}})' = \frac{x}{\sqrt{a^2+x^2}}$$

$$f'(x) = (\frac{e^x}{1+x})' = \frac{xe^x}{1+x^2}$$

$$f'(x) = (ln\frac{x}{\sqrt{x^2+1}+x})' = \frac{1}{x} - \frac{1}{\sqrt{x^2+1}}$$

$$f'(x) = (ln(x+a+\sqrt{2ax+x^2}))' = \frac{1}{\sqrt{2ax+x^2}}$$

$$f'(x) = (\frac{a^x}{x^x})' = (\frac{a}{x})^x(ln\frac{a}{x} - 1)$$

$$f'(x) = (x(a^2+x^2)\sqrt{a^2-x^2})' = \frac{a^4+a^2x^2-4x^4}{\sqrt{a^2-x^2}}$$

$$f'(x) = ((a^x+1)^2)' = 2a^x(a^x+1)lna$$

$$f'(x) = (\frac{a^x-1}{a^x+1})' = \frac{2a^xlna}{(a^x+1)^2}$$

$$f'(x) = (lnsinx)' = cotx$$

$$f'(x) = (ln(sin^2x))' = 2cotx$$

$$f'(x) = (lncosx)' = -tanx$$

$$f'(x) = (lntanx)' = \frac{2}{sin2x}$$

$$f'(x) = (lncotx)' = -\frac{2}{sin2x}$$

$$f'(x) = (ln(\frac{1}{cosx}))' = tanx$$

$$f'(x) = (ln(\frac{1}{sinx}))' = -cotx$$

$$f'(x) = (e^xcosx)' = e^x(cosx - sinx)$$

☞ **Retour**