

解析学I (担当:近藤) #4
2007年5月17日

[I] 次を示せ .

$$(1) \frac{d}{dx} \cos x = -\sin x \quad (2) \frac{d}{dx} \log x = \frac{1}{x} \quad (3) \frac{d}{dx} e^x = e^x \quad (4) \frac{d}{dx} \text{Sin}^{-1} x = \frac{1}{\sqrt{1-x^2}}$$
$$(5) \frac{d}{dx} \text{Cos}^{-1} x = \frac{-1}{\sqrt{1-x^2}} \quad (6) \frac{d}{dx} \cosh x = \sinh x \quad (7) \frac{d}{dx} \tanh x = \frac{1}{\cosh^2 x}$$
$$(8) \frac{d}{dx} \sinh^{-1} x = \frac{1}{\sqrt{x^2+1}}$$

[II] 次の高階導関数を求めよ .

$$(1) f(x) = x^n \quad (n \in \mathbb{N})$$
$$(2) f(x) = x^\alpha \quad (\alpha \in \mathbb{R})$$