復習問題/微分法の公式

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$\log x$ はここでは自然対数を表すものとする.

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1. 次の関数を微分せよ.

(1) $y = \dfrac{1}{x}$ $y' =$	(2) $y = \sin(-x)$ $y' =$	(3) $y = e^{2x}$ $y' =$
(4) $y = \log x$ $y' =$	(5) $y = \cos 5x$ $y' =$	(6) $y = \tan x$ $y' =$
(7) $y = e^{\frac{3x}{4}}$ $y' =$	(8) $y = \dfrac{1}{e^x}$ $y' =$	(9) $y = \sqrt{x}$ $y' =$

2. 次の関数を微分せよ (和, 差, 定数倍の微分).

(1) $y = x^3 + 2x^2 - 3x + 1$ $y' =$	(2) $y = x + x^{-1}$ $y' =$	(3) $y = 2\sin x - \cos 2x$ $y' =$
(4) $y = 2e^x - e^{-2x}$ $y' =$	(5) $y = 2x^4 - x^3 + 5x^2 - 3$ $y' =$	(6) $y = -3$ $y' =$

3. 次の関数を微分せよ (商の微分).

(1) $y = \dfrac{2x^3 + 1}{3x^2 + 1}$ $y' =$	(2) $y = \dfrac{1 - e^x}{1 + e^x}$ $y' =$	(3) $y = \dfrac{-\cos x}{\sin x}$ $y' =$

4. 次の関数を微分せよ (積の微分).

(1) $y = (x^2+1)(3x-1)$ $y' =$	(2) $y = xe^{-x}$ $y' =$	(3) $y = \sin 3x \cos 2x$ $y' =$
(4) $y = x \log x$ $y' =$	(5) $y = x^2 \cos 5x$ $y' =$	(6) $y = \cos 2x \tan x$ $y' =$
(7) $y = x \sin(-2x)$ $y' =$	(8) $y = e^x \cos x$ $y' =$	(9) $y = \sqrt{x}\, e^{3x}$ $y' =$

5. 次の関数を微分せよ (合成関数の微分).

(1) $y = (2x-1)^6$ $y' =$	(2) $y = \sqrt{\dfrac{1+x}{x}}$ $y' =$	(3) $y = \log(1+x)$ $y' =$
(4) $y = e^{-x^2}$ $y' =$	(5) $y = \cos(3x-1)$ $y' =$	(6) $y = (x^2+x-1)^5$ $y' =$
(7) $y = \tan x^{-1}$ $y' =$	(8) $y = \sqrt{1-x^2}$ $y' =$	(9) $y = \sin(2x^2+3)$ $y' =$

学籍番号	氏名