組　番 氏名(ふりがな)＿＿＿＿＿＿＿＿＿＿＿＿

1．導関数を求めよ．途中の計算式も書くこと．

(1)　$y = (x^2 + 2x + 3)^4$

答 ＿＿＿＿＿＿＿＿＿＿＿＿

(2)　$y = \log(\sin x + \cos x)$

答 ＿＿＿＿＿＿＿＿＿＿＿＿

(3)　$y = \mathrm{Sin}^{-1}(2x - 1)^3$

答 ＿＿＿＿＿＿＿＿＿＿＿＿

(4)　$y = e^{7x^3 + x^2}$

答 ＿＿＿＿＿＿＿＿＿＿＿＿

(5)　$y = \log_{10}(5x + 2)$

答 ＿＿＿＿＿＿＿＿＿＿＿＿

(6)　$y = x^2 e^x$

答 ＿＿＿＿＿＿＿＿＿＿＿＿

2. 積分を求めよ．途中の計算式も書くこと．

(1) $\displaystyle\int (7x+3)^9\,dx$

答 ＿＿＿＿＿＿＿＿＿＿＿＿

(2) $\displaystyle\int \sin(5x-3)\,dx$

答 ＿＿＿＿＿＿＿＿＿＿＿＿

(3) $\displaystyle\int \frac{dx}{x^2+2}$

答 ＿＿＿＿＿＿＿＿＿＿＿＿

(4) $\displaystyle\int \frac{dx}{\sqrt{25-x^2}}$

答 ＿＿＿＿＿＿＿＿＿＿＿＿

(5) $\displaystyle\int x\sqrt{1-x}\,dx$

答 ＿＿＿＿＿＿＿＿＿＿＿＿

(6) $\displaystyle\int \frac{e^x}{e^x-e^{-x}}\,dx$[*1]

答 ＿＿＿＿＿＿＿＿＿＿＿＿

[*1] **ヒント** $\int \frac{1}{e^x-e^{-x}} \times e^x\,dx$