学年[　2　]年　学科[MI・AC・BC]　番号[　　　　]　氏名　[　　　　　　　　　　　　　　]

1　次の関数を微分せよ。

(1)　$y = 5x^3 + 4\sqrt{x} + \dfrac{3}{x^2}$

$$y' = 15x^2 + \dfrac{2}{\sqrt{x}} - \dfrac{6}{x^3}$$

(2)　$y = \sqrt[4]{3x + 7}$

$$y' = \dfrac{3}{4\sqrt[4]{(3x+7)^3}}$$

(3)　$y = x\sin 2x$

$$y' = \sin 2x + 2x\cos 2x$$

(4)　$y = \log(1 + \sin x)$

$$y' = \dfrac{\cos x}{1 + \sin x}$$

(5)　$y = (e^x + \log x)^3$

$$y' = 3(e^x + \log x)^2\left(e^x + \dfrac{1}{x}\right)$$

(6)　$y = \cos^5 x$

$$y' = -5\sin x\cos^4 x$$

(7)　$y = \dfrac{1 - \cos x}{1 + \cos x}$

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

(8)　$y = (x^2 - x + 1)e^{3x}$

$$y' = (3x^2 - x + 2)e^{3x}$$

(9)　$y = \mathrm{Sin}^{-1}\dfrac{x}{4}$

$$y' = \dfrac{1}{\sqrt{16 - x^2}}$$

(10)　$y = \mathrm{Tan}^{-1}\dfrac{x}{4}$

$$y' = \dfrac{4}{x^2 + 16}$$

(11)　$y = x\log x$

$$y' = 1 + \log x$$

(12)　$y = \dfrac{e^{2x}}{x}$

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

(13)　$y = e^{\sin 2x}$

$$y' = 2e^{\sin 2x}\cos 2x$$