微分９０題　　　※次の関数を微分せよ。　　　　　　　　　　　　　　　　　　　　　　　（　　）組（　　）番　名前（　　　　　　　　　　　）

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

(2) $y = \dfrac{x - 3}{(x-1)(x-2)}$

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

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

(5) $y = \left(\dfrac{2x + 3}{x^2 - 1}\right)^3$

(6) $y = \dfrac{(x^2 + 1)^2}{(x - 2)^3}$

(7) $y = 2x^2 + \sqrt{x - 4}$

(8) $y = (2x^2 + 1)\sqrt{2 - x^2}$

(9) $y = \dfrac{x}{\sqrt{x + 1}}$

(10) $y = \sqrt{\dfrac{1 - x}{1 + x}}$

(11) $y = x^2\sqrt{1 - x^2}$

(12) $y = \dfrac{1 - x^2}{\sqrt{1 + x^2}}$

(13) $y = \left(x + \sqrt{x^2 + 1}\right)^2$

(14) $y = \dfrac{1}{x + \sqrt{x^2 - 1}}$

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

(16) $y = \left(x - \dfrac{1}{\sqrt{x}}\right)^2$

(17) $y = \dfrac{x}{\sqrt{4 - x^2}}$

(18) $y = \sqrt{\dfrac{x^2 - 1}{x^2 + 1}}$

(19) $y = \sqrt{1 + \sqrt{1 + x}}$

(20) $y = \dfrac{x + \sqrt{x^2 - 1}}{x - \sqrt{x^2 - 1}}$

(21) $y = \dfrac{\sqrt{1 + x^2} - \sqrt{1 - x^2}}{\sqrt{1 + x^2} + \sqrt{1 - x^2}}$

(22) $y = (x + 3)\sqrt[3]{3 - 2x}$

(23) $y = \sqrt[3]{\dfrac{(x + 1)^2}{x^2 + 1}}$

(24) $y = \sin 2x$

(25) $y = \sin x \cos^2 x$

(26) $y = \sin^2 x \cos 2x$

(27) $y = \sin^2 \dfrac{x}{2}$

(28) $y = \sin^3(3x - \pi)$

(29) $y = \dfrac{1}{\sin^2 x}$

(30) $y = \tan^3\left(2x - \dfrac{\pi}{4}\right)$

(31) $y = \dfrac{1 - \sin x}{1 + \sin x}$

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

(33) $y = \dfrac{\sin x + \cos x}{\sin x - \cos x}$

(34) $y = \sin\sqrt{x^2 + x + 1}$

(35) $y = \sqrt{1 - \sin 2x}$

(36) $y = \dfrac{1}{\sqrt{\tan x}}$

(37) $y = \sqrt{\dfrac{1 + \sin x}{1 - \sin x}}$

(38) $y = \sqrt{1 + \sin x} + \sqrt{1 - \sin x}$

(39) $y = \dfrac{1}{\sqrt{\sin x + \cos x}}$

(40) $y = \sin 2x \tan x$

(41) $y = \sin 3x + \cos x^3$

(42) $y = \sqrt{3\sin^2 x + 2\cos^2 x}$

(43) $y = \dfrac{\sin x}{\sqrt{4\cos^2 x + 3\sin^2 x}}$

(44) $y = e^{-x^3}$

(45) $y = a^{x^2 + 1}$

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

(47) $y=x\,e^{-x^2}$

(48) $y=e^{ax}\cos bx$

(49) $y=e^{x^2}\sin x$

(50) $y=\log(x^2+1)$

(51) $y=x\log x$

(52) $y=\dfrac{\log x}{x}$

(53) $y=x^2(\log x)^3$

(54) $y=\log_x a$

(55) $y=\dfrac{\sqrt{x}}{e^x}$

(56) $y=\log\dfrac{e^x+1}{e^x}$

(57) $y=a^x\log x$

(58) $y=x\,e^{\frac{1}{x}}$

(59) $y=2^x\sin x$

(60) $y=e^{-ax}\sin bx$

(61) $y=e^{x\sin x}$

(62) $y=\dfrac{e^x\cos x}{1+\sin x}$

(63) $y=\log\left(\tan x+\dfrac{1}{\cos x}\right)$

(64) $y=\log\dfrac{1+\sin x}{1-\sin x}$

(65) $y=\log\left|2x-\sqrt{1+4x^2}\right|$

(66) $y=\log\left|\dfrac{x-a}{x+a}\right|$

(67) $y=\log\left|\tan\dfrac{x}{2}\right|$

(68) $y=\log\dfrac{2\sin x+\cos x}{\sin x+2\cos x}$

(69) $y=\log\sqrt{\dfrac{2+x}{2-x}}$

(70) $y=(x+2)^2(x+3)^3(x+4)^4$

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

(72) $y=\sqrt{\dfrac{(x-1)(x+3)}{(x+1)^3}}$

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

(74) $y=\sin(\log x)$

(75) $y=\tan(\sin x)$

(76) $y=\log(\log x)$

(77) $y=\log(\sin^2 x)$

(78) $y=\log\{e^x(1-x)\}$

(79) $y=\dfrac{1}{2}\{(\log x)^2+1\}$

(80) $y=x^x\quad(x>0)$

(81) $y=x^{\log x}\quad(x>0)$

(82) $y=x^{\sin x}\quad(x>0)$

(83) $y=(\tan x)^{\sin x}\quad\left(0<x<\dfrac{\pi}{2}\right)$

(84) $y=(\sin x)^{\sqrt{\log x}}\quad(x>0)$

(85) $y=\log(\log(\log x))$

(86) $y=\sin(\sin(\sin x))\quad\left(0<x<\dfrac{\pi}{2}\right)$

(87) $y=x^2\sqrt{\dfrac{1+x^2}{1-x^2}}$

(88) $y=\sqrt{\dfrac{1-\sqrt[3]{x}}{1+\sqrt[3]{x}}}$

(89) $x=y\sqrt{1+y}$

(90) $2x^2+4xy+5y^2=1$