

7 次関数を微分せよ。

(1) $y = (x^3 + x - 4)^2$

(2) $y = (4x^3 + 1)^4$

(3) $y = (2x - 1)(5x - 2)^3$

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

(5) $y = \frac{1}{(3x^2 - x - 1)^3}$

(6) $y = -\frac{1}{(x^3 + 2)^4}$

(7) $y = \left(x^3 - \frac{3}{x}\right)^3$

8 次関数を微分せよ。

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

(2) $y = \frac{1}{\sqrt{2 - x^3}}$

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

(4) $y = \frac{3x}{\sqrt{x^3 + 2}}$

(5) $y = \sqrt[4]{x^2 + 2x + 2}$

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

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

9 次関数について、 $\frac{dy}{dx}$ を x, y の式で表せ。

(1) $x = 4y^2 - 3y$

(2) $x = (4 - 3y)^5 + 1$

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

(4) $x = \frac{4}{y^3}$

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

(6) $x = y^3 - 3y + 1$

(7) $\frac{x^2}{4} + y^2 = 1$

(8) $\frac{x^2}{16} - \frac{y^2}{9} = -1$

(9) $xy = 2$

(10) $x^2 + 2xy - y^2 = 1$

10 次関数を微分せよ。

(1) $y = (x-2)^3(2x-1)^2$

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

(3) $y = \left(\frac{x+1}{x}\right)^3$

(4) $y = \frac{x^2 - 2x}{\sqrt[3]{x}}$

(5) $y = \sqrt{x + \sqrt{x}}$