

1 ●次の関数を微分せよ。

(1)  $y = x^7$

(2)  $y = -5x^6$

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

(4)  $y = 2x^5 + x^4 + 6x^3 + 7x^2 + 8x + 3$

(5)  $y = \frac{1}{3}x^6 - x^5 + \frac{3}{2}x^4 - 4x^3 - 9x$

(6)  $y = x^{-3}$

(7)  $y = -4x^{-5}$

(8)  $y = \frac{1}{x^7}$

(9)  $y = x^4 + \frac{1}{x^3}$

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

2 ●次の関数を微分せよ。

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

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

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

(4)  $y = \frac{1}{(5x^2 - x - 1)^4}$

(5)  $y = \left(x^2 - \frac{2}{x}\right)^2$

3 ●次の関数を微分せよ。

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

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

(3)  $y = (x^2 - 1)(x^2 + 9)^2$

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

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

4 ●次の関数を微分せよ。

(1)  $y = x^{\frac{4}{5}}$

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

(3)  $y = x\sqrt{x}$

(4)  $y = 4x^{\frac{3}{2}} - 6x^{\frac{5}{6}}$

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

5 ●次の関数を微分せよ。

(1)  $y = -x^{\frac{6}{5}}$

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

(3)  $y = 2x\sqrt[5]{x}$

(4)  $y = 3x^{\frac{4}{3}} + 5x^{\frac{2}{3}}$

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

6 ●次の関数を微分せよ。

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

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

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

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

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

7 ●次の関数を微分せよ。

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

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

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

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

(5)  $y = \frac{x^2}{\sqrt{x^2-4}}$