

実習10.1

(1)

> diff(x³ - 2·x² - 9, x)

$$3x^2 - 4x \quad (1)$$

(2)

> diff((4·x² - 5)⁶, x)

$$48(4x^2 - 5)^5 x \quad (2)$$

(3)

> diff(exp(f(x)), x)

$$\left(\frac{d}{dx} f(x)\right) e^{f(x)} \quad (3)$$

(4)

> diff(f(x)·g(x), x)

$$\left(\frac{d}{dx} f(x)\right) g(x) + f(x) \left(\frac{d}{dx} g(x)\right) \quad (4)$$

(5)

> diff($\frac{f(x)}{g(x)}$, x)

$$\frac{\frac{d}{dx} f(x)}{g(x)} - \frac{f(x) \left(\frac{d}{dx} g(x)\right)}{g(x)^2} \quad (5)$$

(6)

> diff(sin(x²), x\$2)

$$2 \cos(x^2) - 4x^2 \sin(x^2) \quad (6)$$

(7)

> diff(a^x, x\$4)

$$a^x \ln(a)^4 \quad (7)$$

(8)

> diff(f(x)·g(x), x\$5)

$$\begin{aligned} & \left(\frac{d^5}{dx^5} f(x)\right) g(x) + 5 \left(\frac{d^4}{dx^4} f(x)\right) \left(\frac{d}{dx} g(x)\right) + 10 \left(\frac{d^3}{dx^3} f(x)\right) \left(\frac{d^2}{dx^2} g(x)\right) \\ & + 10 \left(\frac{d^2}{dx^2} f(x)\right) \left(\frac{d^3}{dx^3} g(x)\right) + 5 \left(\frac{d}{dx} f(x)\right) \left(\frac{d^4}{dx^4} g(x)\right) + f(x) \left(\frac{d^5}{dx^5} g(x)\right) \end{aligned} \quad (8)$$