

$$5) (\sin(4x) + Dx + E - y)^2$$

$$\sum 2(\sin(4x) + Dx + E - y) \sin(4x)$$

$$\sum 2(\sin(4x) + Dx + E - y)x$$

$$\sum 2(\sin(4x) + Dx + E - y)$$

$$y \sin(4x) = C \sum \sin^2(4x) + D \sum \sin(4x)x + E \sum \sin(4x)$$

$$E \sum \sin(4x)$$

$$2 \quad 1 \quad 1$$

$$1 \quad 2 \quad 1$$

$$2 \quad 1 \quad 1$$

$$x \sin(4x) + Dx$$

$$1 \quad 2 \quad 1$$

$$C \sum x \sin(4x) + D \sum x + E \sum$$

$$1 \quad 1$$

$$② C \sum x \sin(4x) + D \sum x^2 + E \sum x$$

$$1 \quad 1 \quad 1$$

$$③ C \sum \sin(4x) + D \sum x + E \cdot n$$

$$1 \quad 2 \quad 1$$

$$\sin y' \sin(4x)$$

$$1 \quad 1$$

$$y \quad x$$

$$y$$

2)

$$f(x) + f'(x) + f''(x) + f'''(x)$$

$$f(0) + f'(0) + \frac{f''(0)}{2!} + \frac{f'''(0)}{3!}$$

$$f(0) + f$$

$$f'(x) = 2 \sin^2(x) \cdot 2 \sin(x) \cos(x) - 2 \cos^2(x) \sin(x) \cdot 2 \sin(x) \cos(x)$$

$$f''(x) = 2(\cos^2(x) - \sin^2(x))$$

$$f'''(x) = -8 \sin(x) \cos(x)$$

$$f^{(4)}(x) = 8 \sin^2(x) - 8 \cos^2(x)$$

$$f^{(5)}(x) = 32 \cos(x) \sin(x)$$

$$(b) f^{(5)}(x) = \frac{32(\cos^2(x) - \sin^2(x))}{f(x) + \frac{f'(x)}{1} + \frac{f''(x)}{2!} + \frac{f'''(x)}{3!} x^3}$$

$$f(0) = 0$$

$$f^{(5)}(x) = -128(\cos^2(x) - \sin^2(x))$$

$$f(0) = 0$$

(10)

$$0 + 0$$

$$0 + 2x^2 + 0 + 0 + 0 + 320 + \frac{2}{45}x^6 + 0 + \frac{-1}{315}x^8 + \frac{2}{14175}x^{10}$$

$$d^{10} = 512(\cos^2(x) - \sin^2(x))$$

$$x^2 + \frac{2x^6}{45} - \frac{x^8}{315} + \frac{2x^{10}}{14175}$$

② ⑥ ⑧ (10)

3.1

$$y = A \exp(x) + B \ln(x) + C - y$$

$$\sin(x^2) \quad 1^{st} \text{ diff} = 2x \cos(x^2)$$

$$2^{nd} \text{ diff} = 2(\cos(x^2) - 2x^2 \sin(x^2))$$

$$\frac{d}{dx} \sum \frac{d}{dx} A \exp(x) + B \ln(x) + C$$

$$\sum \exp(x)$$

$$\sum \frac{dB}{dx} A \exp(x) + B \ln(x) + C$$

$$\sum \frac{d}{dx} (A \exp(x) + B \ln(x) + C - y)^2$$

$$= \sum 2(\exp(x) + B \ln(x) + C - y) \exp(x)$$

$$\neq$$

$$\sum \frac{dB}{dx} (A \exp(x) + B \ln(x) + C - y)^2$$

$$= \sum 2(A \exp(x) + B \ln(x) + C - y) \ln(x)$$

$$\sum \frac{dC}{dx} (A \exp(x) + B \ln(x) + C - y)^2$$

$$= \sum 2(A \exp(x) + B \ln(x) + C - y)$$

$$\begin{aligned} \textcircled{1} \sum y \exp(x) &= A \sum \exp(x) + B \sum \ln(x) + C \sum 1 \\ &= A \sum (\exp(x))^2 + B \sum \ln(x) \exp(x) + C \sum \exp(x) \end{aligned}$$

$$\textcircled{2} \sum y \ln(x) = A \sum \exp(x) \ln(x) + B \sum (\ln(x))^2 + C \sum \ln(x)$$

$$\textcircled{3} \sum y = A \sum \exp(x) + B \sum \ln(x) + C \cdot n$$