

⑪

$$y = \tan \sqrt{5x}$$

$$M = \tan x$$

$$B = (\cancel{5x})^{1/2}$$

$$M = x^{1/2}$$

$$B = 5x$$

$$y' = \sec^2 \sqrt{5x} \cdot \frac{d}{dx} \left((5x)^{1/2} \right)$$
$$= \sec^2 \sqrt{5x} \cdot \frac{1}{2} (5x)^{-1/2} \cdot 5$$

$$= \frac{5 \sec^2 \sqrt{5x}}{2 \sqrt{5x}}$$

⑫

$$y = \sec^3(2x+1)$$

$$y = \left(\sec(2x+1) \right)^3$$

$$u = x^3$$

$$v = \sec(2x+1)$$

$$y' = 3 \left(\sec(2x+1) \right)^2 \cdot \frac{d}{dx} \left(\sec(2x+1) \right)$$

$$u = \sec x$$

$$v = 2x+1$$

$$y' = 3 \sec^2(2x+1) \cdot \sec(2x+1) \tan(2x+1) \cdot 2$$

$$= 6 \sec^3(2x+1) \tan(2x+1)$$

$$(13) \quad y = 4 \sec 3x \tan 3x$$

$$y' = 4 \cdot \left[\sec 3x \frac{d}{dx} (\tan 3x) + \tan 3x \cdot \frac{d}{dx} (\sec 3x) \right]$$

$$= 4 \left[\sec 3x \cdot \sec^2 3x \cdot \underset{\substack{M = \tan x \\ B = 3x}}{3} + \tan 3x \cdot \sec 3x \tan 3x \cdot 3 \right]$$

$$= 12 \sec^3 3x + 12 \sec 3x \tan^2 3x$$

$$= 12 \sec 3x (\sec^2 3x + \tan^2 3x)$$

$$(14) \quad y =$$

$$y' = \frac{1}{3}$$

(14)

$$y = \sin x (x + \cos x)$$

$$y' = \sin x \cdot \frac{d}{dx}(x + \cos x) + (x + \cos x) \cdot \cos x$$

$$= \sin x \cdot (1 - \sin x) + x \cos x + \cos^2 x$$

$$= \sin x - \sin^2 x + x \cos x + \cos^2 x$$

$$\textcircled{15} \quad y = \sqrt[3]{\cos 2x} = (\cos 2x)^{1/3}$$

$$u = x^{1/3}$$

$$B = \cos 2x$$

$$y' = \frac{1}{3} (\cos 2x)^{-2/3} \cdot \frac{d}{dx} (\cos 2x)$$

$$= \frac{1}{3} (\cos 2x)^{-2/3} \cdot -\sin 2x \cdot 2$$

$$= \frac{-2 \sin 2x}{3 \sqrt[3]{\cos^2 2x}}$$