



$$\textcircled{1} - y = 2x^3 - 6x^2 - 7x$$

$$y' = 6x^2 - 12x - 7$$

$$\textcircled{2} - y = \frac{11}{4x^3} + \frac{7}{3x^2} \quad \frac{vdu - u dv}{x^2}$$

$$\frac{11}{4} x^3 - 1 = \frac{33}{4} x^2$$

$$\frac{7}{3} x^2 = \frac{41}{33} x$$

$$\textcircled{3} y = 11 - 2x^2 - 6x^3$$

$$y' = -4x - 18x^2$$

$$\textcircled{4} y = \frac{x}{x^2 - 8x} \quad \frac{u du - v dv}{v^2}$$

$$y' = \frac{x^2 - 8x - 2x^2 - 8x}{(x^2 - 8x)^2}$$

$$\textcircled{5} y = \frac{5}{3x-4} \quad \frac{du \cdot v - u \cdot dv}{v^2}$$

$$y' = \frac{3 \cdot 5 - 0 \cdot 3x - 4}{(3x-4)^2}$$

$$y' = \frac{15}{(3x-4)^2}$$

$$\textcircled{6} \quad y = \frac{3x+2}{2x-1} \quad \frac{d(u) \cdot v - u \cdot d(v)}{v^2} \quad \begin{array}{l} u = 3x+2 \quad v = 2x-1 \\ du = 3 \quad dv = 2 \end{array}$$

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

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

$$7 \quad y = \frac{3x^2+1}{2x} \quad \frac{v \cdot d(u) - u \cdot d(v)}{v^2}$$

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

$$y = \frac{12x^2 - 6x^2 + 2}{4x^2}$$

$$\frac{6x^2 + 2}{4x^2} = \frac{6x^2}{4x^2} + \frac{2}{4x^2}$$

$$y' = \frac{3}{2} + \frac{2}{4x^2}$$

⑧ $\frac{5}{4+x^2}$ ~~$\frac{du}{v^2} = \frac{du}{v^2}$~~

$$y' = \frac{4 \cdot x^2 (5) - 0 (2x)}{(4+x^2)^2}$$

$$u = 5 \quad v = 4+x^2$$

$$du = 0 \quad dv = 2x$$

$$y' = \frac{20 + 5^2}{(4+x^2)^2}$$

⑨ $y = (1+2x)^2$ $n = 2$ $v = 1+2x$

$ny = 1$ $dv = 2$

$$y' = 2 + 4x \cdot 2$$

$$y = 4 + 8x$$

$$y = \frac{3}{5x^2} - \frac{3}{4x} + \frac{1}{8}$$

$$\frac{3}{5} x^2 = \frac{6}{5} x$$

$$\frac{3}{4} x = \frac{3}{4}$$

$$\frac{1}{2} \Rightarrow 0$$

$$R = \frac{6}{5} * - \frac{3}{4}$$

$$\frac{2x^2}{\tan x^2} \quad U = 2x^2 \quad V = \tan x^2$$

$$dU = 4x \quad dV = 2x \sec^2 x^2$$

$$y' = \frac{4x \tan x^2 - 4x^3 \sec x^2}{(\tan x^2)^2}$$

$$3x^2 \cos 3x^2 \quad \frac{UV - U'V - UdV}{V^2}$$

$$U = 3x^2 \quad dU = 6x$$

$$V = \cos 3x^2 \quad dV = -\sin 6x$$

$$y = \frac{6x \cos 3x^2 - \sin 6x \cdot 3x^2}{(\cos 3x^2)^2}$$

$$\sin x^2 \cos x^2 \quad \frac{UV = dU \cdot V + U \cdot dV}{V^2}$$

$$U = \sin x^2 \quad V = \cos x^2$$

$$dU = 2x \cos x^2 \quad dV = -2x \sin x^2$$

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