

$$y = \frac{e^x}{(x-1)^2} \quad y' = \frac{e^x(x-1)^2 - 2(x-1)e^x}{(x-1)^4} = \frac{e^x(x-1) - 2e^x}{(x-1)^3} = \frac{xe^x - e^x - 2e^x}{(x-1)^3} = \frac{xe^x - 3e^x}{(x-1)^3}$$

$$y = x^3 3^x + x^2 \operatorname{sen} x \quad y' = 3x^2 3^x + x^3 3^x \operatorname{Ln} 3 + 2x \operatorname{sen} x + x^2 \cos x$$

$$y = \operatorname{Ln} \left( \frac{x-1}{x+4} \right) = \operatorname{Ln}(x-1) - \operatorname{Ln}(x+4)$$

$$y' = \frac{1}{x-1} - \frac{1}{x+4}$$

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

$$y = 7^{2x+5} \operatorname{tg}(x^2 - 5x), \quad y' = 7^{2x+5} (\operatorname{Ln} 7) 2 \operatorname{tg}(x^2 - 5x) + 7^{2x+5} \frac{2x-5}{\cos^2(x^2 - 5x)}$$

$$y = \operatorname{Ln}(3x^5 - 5x^2 + 6) \quad y' = \frac{15x^4 - 10x}{3x^5 - 5x^2 + 6}$$

$$y = \sqrt{\operatorname{arctg} x} \quad y' = \frac{1}{2\sqrt{\operatorname{arctg} x}} \frac{1}{1+x^2}$$

$$y = \frac{1}{7x+1} + \frac{\sqrt{2x}}{3} \quad y' = \frac{0(7x+1) - 1 \cdot 7}{(7x+1)^2} + \frac{1}{3} \frac{2}{2\sqrt{2x}} = \frac{-7}{(7x+1)^2} + \frac{1}{3\sqrt{2x}}$$

$$y = \frac{\operatorname{tg}(\operatorname{sen} x)}{25} = \frac{1}{25} \operatorname{tg}(\operatorname{sen} x)$$

$$y = \frac{\operatorname{tg}(\operatorname{sen} x)}{25} \quad y' = \frac{\frac{\cos x}{\cos^2(\operatorname{sen} x)} 25 - 0 \cdot \operatorname{tg}(\operatorname{sen} x)}{25^2} = \frac{25 \cos x}{\cos^2(\operatorname{sen} x)} = \frac{25 \cos x}{25^2 \cos^2(\operatorname{sen} x)} = \frac{\cos x}{25 \cos^2(\operatorname{sen} x)}$$

$$y = \frac{1}{25} \operatorname{tg}(\operatorname{sen} x) \quad y' = \frac{1}{25} \frac{\cos x}{\cos^2(\operatorname{sen} x)}$$

$$\frac{\cos x}{\cos^2 x} = \frac{\cos x}{(\cos x)^2} = \frac{1}{\cos x}$$

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

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

$$y = \frac{1}{\sqrt{x-4}} \quad y' = \frac{-1 \frac{1}{2\sqrt{x-4}}}{(\sqrt{x-4})^2} = \frac{-1}{2\sqrt{x-4}(\sqrt{x-4})^2}$$

Pág. 326, 10 b c g

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