

$$\mathbf{1} \quad y = \frac{2x+3}{x^2-x}; \quad y = \frac{x^4}{x^3+1} \quad \left[\frac{-2x^2-6x+3}{(x^2-x)^2}; \frac{x^6+4x^3}{(x^3+1)^2} \right]$$

$$\mathbf{2} \quad y = \frac{x^2}{(x-1)^3}; \quad y = \frac{(2x+1)^3}{x^4} \quad \left[-\frac{x^2+2x}{(x-1)^4}; \frac{-2(2x+1)^2(x+2)}{x^5} \right]$$

$$\mathbf{3} \quad y = \frac{(x-1)^2}{(2x-3)^3}; \quad y = \frac{3}{\sqrt[3]{2+x^2}} \quad \left[\frac{2x(1-x)}{(2x-3)^4}; -\frac{2x}{\sqrt[3]{(2+x^2)^4}} \right]$$

$$\mathbf{4} \quad y = \sqrt{\frac{x+2}{3x}}; \quad y = \frac{x-2}{\sqrt[4]{x-2}} \quad \left[-\frac{1}{3x^2} \sqrt{\frac{3x}{x+2}} = \frac{-1}{|x|\sqrt{3x(x+2)}}; \frac{3}{4\sqrt[4]{x-2}} \right]$$

$$\mathbf{5} \quad y = \left(\frac{2x}{3a-x} \right)^{\frac{3}{2}}; \quad y = \frac{\sqrt{2-x^2}}{x} \quad \left[\frac{9a\sqrt{2x(3a-x)}}{(3a-x)^3}; \frac{-2}{x^2\sqrt{2-x^2}} \right]$$

$$\mathbf{8} \quad y = \frac{x}{\sqrt{1+x}}; \quad y = \log(x^2-3x+1)^2 \quad \left[\frac{2+x}{2\sqrt{(1+x)^3}}; \frac{2(2x-3)}{x^2-3x+1} \right]$$

$$\mathbf{10} \quad y = \log(1+\sin^2 x); \quad y = \log_a(x^2+3) \quad \left[\frac{\sin 2x}{(1+\sin^2 x) \log 3}; \frac{2x}{(x^2+3) \log a} \right]$$

$$\mathbf{11} \quad y = \log|x^2-1| + \log(x^2+1); \quad y = \frac{2x+4}{\sqrt{x+1}} \quad \left[\frac{4x^3}{x^4-1}; \frac{x}{\sqrt{(x+1)^3}} \right]$$

$$\mathbf{12} \quad y = \log_x 5 \text{ (ricordare la formula del cambiamento di base).} \quad \left[-\frac{\log 5}{x \log^2 x} \right]$$

$$\mathbf{13} \quad y = \log \frac{1-x}{1+x} - 2 \log(1-x^2); \quad y = \log_3 x + \frac{2}{\log_3 3} \quad \left[\frac{2(2x-1)}{1-x^2}; \frac{3}{x \log 3} \right]$$

$$\mathbf{23} \quad y = \log(2 \sin x + \sin 2x)^2; \quad y = \text{arc tg } \sqrt{x^2-1} \quad \left[\frac{4(\cos x + \cos 2x)}{2 \sin x + \sin 2x}; \frac{1}{x\sqrt{x^2-1}} \right]$$

$$\mathbf{25} \quad y = \text{arc sen } x - \sqrt{1-x^2}; \quad y = \log[3(x + \sqrt{9+x^2})] \quad \left[\sqrt{\frac{1+x}{1-x}}; \frac{1}{\sqrt{9+x^2}} \right]$$

$$\mathbf{29} \quad y = \frac{x}{\log_x 2} \quad \left[\frac{1 + \log x}{\log 2} = \log_2(ex) \right]$$

$$\mathbf{30} \quad y = \log_{x^2}(2x+3) \quad \left[\frac{1}{2 \log^2 x} \left\{ \frac{2 \log x}{2x+3} - \frac{\log(2x+3)}{x} \right\} \right]$$

$$\mathbf{32} \quad y = \frac{\sqrt{x+1} - \sqrt{x-1}}{\sqrt{x+1} + \sqrt{x-1}}; \quad y = \log x^2 + 2\sqrt{x}.$$

$$\left[\frac{\sqrt{x^2-1}-x}{\sqrt{x^2-1}}; \frac{2+\sqrt{x}}{x} \right]$$

$$\mathbf{35} \quad y = 7^{x^2} + x^{\sqrt{7}}; \quad y = \log[\pi(\sqrt{6}+2)^2].$$

$$[2x 7^{x^2} \log 7 + \sqrt{7} x^{\sqrt{7}-1}; 0]$$

$$\mathbf{42} \quad y = \log_x(x+1); \quad y = \text{arc tg} \frac{\text{sen } x}{1 + \cos x}.$$

$$\left[\frac{1}{\log^2 x} \left(\frac{\log x}{x+1} - \frac{\log(x+1)}{x} \right); \frac{1}{2} \right]$$

$$\mathbf{43} \quad y = 4 \log x + \frac{x^2 - 8x + 1}{x - 2}.$$

$$\left[\frac{x^3 - x + 16}{x(x-2)^2} \right]$$

$$\mathbf{50} \quad y = 2x\sqrt{1+4x^2} + \log(2x + \sqrt{1+4x^2}) + 4.$$

$$[4\sqrt{1+4x^2}]$$

$$\mathbf{51} \quad y = x(x+2) + 2[1 - \log(x-2)^3].$$

$$\left[\frac{2(x^2 - x - 5)}{x-2} \right]$$

$$\mathbf{54} \quad y = \log x^2 + 2\sqrt{x}; \quad y = \log_3 x + \frac{2}{\log_x 3}.$$

$$\left[\frac{2+\sqrt{x}}{x}; \frac{3}{x \log 3} \right]$$

$$\mathbf{55} \quad y = \log_x(x^2 + 1).$$

$$\left[\left(\frac{2x}{x^2+1} \log x - \frac{\log(x^2+1)}{x} \right) \frac{1}{\log^2 x} \right]$$

$$\mathbf{61} \quad y = \frac{x^2 \log x - x \log x + 1}{x \log x + 1}.$$

$$\left[\frac{x^2 \log^2 x + 2x \log x + x - 2 \log x - 2}{(x \log x + 1)^2} \right]$$