

Calcolare la derivata prima delle seguenti funzioni:

$$f(x) = x \operatorname{arctg} x$$

$$\text{Risposta: } f' = \operatorname{arctg} x + \frac{x}{1+x^2}$$

$$f(x) = \frac{1}{x}$$

$$\text{Risposta: } f' = -\frac{1}{x^2}$$

$$f(x) = \frac{1}{1+e^{-x}}$$

$$\text{Risposta: } f' = \frac{e^{-x}}{(1+e^{-x})^2}$$

$$f(x) = \frac{x+1}{x+2}$$

$$\text{Risposta: } f' = \frac{1}{(x+2)^2}$$

$$f(x) = e^{\operatorname{arctg} x}$$

$$\text{Risposta: } f' = \frac{e^{\operatorname{arctg} x}}{1+x^2}$$

$$f(x) = \frac{1}{x^2 - 4x + 5}$$

$$\text{Risposta: } f' = -\frac{2x-4}{(x^2-4x+5)^2}$$

$$f(x) = \operatorname{arctg}(\log x)$$

$$\text{Risposta: } f' = \frac{1}{x(1+\log^2 x)}$$

$$f(x) = 1 + \log(x+1)$$

$$\text{Risposta: } f' = \frac{1}{x+1}$$

$$f(x) = e^x - x - 1$$

$$\text{Risposta: } f' = e^x - 1$$

$$f(x) = \frac{3}{x+2}$$

$$\text{Risposta: } f' = -\frac{3}{(x+2)^2}$$

$$f(x) = x \log x$$

$$\text{Risposta: } f' = 1 + \log x$$

$$f(x) = 5 \log x + 7x$$

$$\text{Risposta: } f' = \frac{5}{x} + 7$$

$$f(x) = \frac{x}{2} + \operatorname{arctg} x$$

$$\text{Risposta: } f' = \frac{1}{2} + \frac{1}{1+x^2}$$

$$f(x) = 3x^2 - 7x + 124$$

$$\text{Risposta: } f' = 6x - 7$$

$$f(x) = \log \left(\frac{1+x}{1-x} \right)$$

$$\text{Risposta: } f' = \frac{2}{1-x^2}$$

$$f(x) = \frac{12}{x-12} + \frac{x}{12}$$

$$\text{Risposta: } f' = \frac{1}{12} - \frac{12}{(x-12)^2}$$

$$f(x) = e^{\frac{1}{x}}$$

$$\text{Risposta: } f' = -\frac{e^{\frac{1}{x}}}{x^2}$$

$$f(x) = \frac{x-1}{12} - \frac{x-1}{13-x}$$

$$\text{Risposta: } f' = \frac{1}{12} - \frac{12}{(13-x)^2}$$

$$f(x) = x \log^2 x$$

$$\text{Risposta: } f' = (\log x)(2 + \log x)$$

$$f(x) = e^{x-3}(x-5)$$

$$\text{Risposta: } f' = e^{x-3}(x-4)$$

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

$$\text{Risposta: } f' = \frac{1}{2}x(x^2 - 1)^{-3/4}$$

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

$$\text{Risposta: } f' = -\frac{2x}{(1+x^2)^2}$$

$$f(x) = \log(1+e^{-x})$$

$$\text{Risposta: } f' = \frac{-e^{-x}}{1+e^{-x}}$$

$$f(x) = x^2 - 6x + 4\log x$$

$$\text{Risposta: } f' = 2\frac{x^2 - 3x + 2}{x}$$

$$f(x) = e^{\frac{x-1}{x}}$$

$$\text{Risposta: } f' = \frac{e^{\frac{x-1}{x}}}{x^2}$$

$$f(x) = \frac{e^x + 1}{e^x - 1}$$

$$\text{Risposta: } f' = -\frac{2e^x}{(e^x - 1)^2}$$

$$f(x) = \log(\log x)$$

$$\text{Risposta: } f' = \frac{1}{x \log x}$$

$$f(x) = 4\log x + \frac{x^2}{8} - \frac{5x}{2}$$

$$\text{Risposta: } f' = \frac{x^2 - 10x + 16}{4x}$$

$$f(x) = e^x(x-2)$$

$$\text{Risposta: } f' = e^x(x-1)$$

$$f(x) = x^2 + \frac{2}{x}$$

$$\text{Risposta: } f' = 2\frac{x^3 - 1}{x^2}$$

$$f(x) = xe^{-x}$$

$$\text{Risposta: } f' = (1-x)e^{-x}$$

$$f(x) = \frac{x}{\log x}$$

$$\text{Risposta: } f' = \frac{\log x - 1}{\log^2 x}$$

$$f(x) = \log(1+e^{-x})$$

$$\text{Risposta: } f' = \frac{-e^{-x}}{1+e^{-x}}$$

$$f(x) = \frac{1}{e^x - 2}$$

$$\text{Risposta: } f' = -\frac{e^x}{(e^x - 2)^2}$$

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

$$\text{Risposta: } f' = -\frac{2+x}{x^3}$$

$$f(x) = \frac{e^x - 1}{e^x + 1}$$

$$\text{Risposta: } f' = \frac{2e^x}{(e^x + 1)^2}$$

$$f(x) = \log^2 x + 2\log x$$

$$\text{Risposta: } f' = \frac{2(1 + \log x)}{x}$$

$$f(x) = \frac{1}{1 - e^{-x}}$$

$$\text{Risposta: } f' = \frac{-e^{-x}}{(1 - e^{-x})^2}$$

$$f(x) = x^2 e^x$$

$$\text{Risposta: } f' = e^x(x^2 + 2x)$$

$$f(x) = \frac{e^x}{\sqrt{x}}$$

$$\text{Risposta: } f' = \frac{e^x(2x - 1)}{2x\sqrt{x}}$$

$$f(x) = \frac{1}{\log x}$$

$$\text{Risposta: } f' = -\frac{1}{x \log^2 x}$$