Selenium Derivative Calculator Bot

Rafael Requiao

March 15, 2018

0.1 Questao 01

$$\arctan\left(\sqrt{\ln\left(\tan\left(5x-1\right)\right)}\right)$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\left[\arctan\left(\sqrt{\ln\left(\tan\left(5x-1\right)\right)}\right)\right]$$

$$= \frac{1}{\left(\sqrt{\ln\left(\tan\left(5x-1\right)\right)}\right)^2+1}\cdot\frac{\mathrm{d}}{\mathrm{d}x}\left[\sqrt{\ln\left(\tan\left(5x-1\right)\right)}\right]$$

$$= \frac{\frac{1}{2}\ln^{\frac{1}{2}-1}\left(\tan\left(5x-1\right)\right)\cdot\frac{\mathrm{d}}{\mathrm{d}x}\left[\ln\left(\tan\left(5x-1\right)\right)\right]}{\ln\left(\tan\left(5x-1\right)\right)+1}$$

$$= \frac{\frac{1}{\tan(5x-1)}\cdot\frac{\mathrm{d}}{\mathrm{d}x}\left[\tan\left(5x-1\right)\right]}{2\sqrt{\ln\left(\tan\left(5x-1\right)\right)}\left(\ln\left(\tan\left(5x-1\right)\right)+1\right)}$$

$$= \frac{\sec^2\left(5x-1\right)\cdot\frac{\mathrm{d}}{\mathrm{d}x}\left[5x-1\right]}{2\tan\left(5x-1\right)\sqrt{\ln\left(\tan\left(5x-1\right)\right)}\left(\ln\left(\tan\left(5x-1\right)\right)+1\right)}$$

$$= \frac{\left(5\cdot\frac{\mathrm{d}}{\mathrm{d}x}\left[x\right]+\frac{\mathrm{d}}{\mathrm{d}x}\left[-1\right]\right)\sec^2\left(5x-1\right)}{2\tan\left(5x-1\right)\sqrt{\ln\left(\tan\left(5x-1\right)\right)}\left(\ln\left(\tan\left(5x-1\right)\right)+1\right)}$$

$$= \frac{\left(5\cdot 1+0\right)\sec^2\left(5x-1\right)}{2\tan\left(5x-1\right)\sqrt{\ln\left(\tan\left(5x-1\right)\right)}\left(\ln\left(\tan\left(5x-1\right)\right)+1\right)}$$

$$= \frac{5\sec^2\left(5x-1\right)}{2\tan\left(5x-1\right)\sqrt{\ln\left(\tan\left(5x-1\right)\right)}\left(\ln\left(\tan\left(5x-1\right)\right)+1\right)}$$