

$$49) \operatorname{tg} x + \operatorname{tg}(\pi - x) + \operatorname{ctg}\left(\frac{\pi}{2} + x\right) = \operatorname{tg}(2\pi - x)$$

$$\begin{aligned} \rightarrow // \operatorname{tg} x + \operatorname{tg}(\pi - x) + \operatorname{ctg}\left(\frac{\pi}{2} + x\right) &= \\ &= \operatorname{tg} x - \operatorname{tg} x - \operatorname{tg} x \\ &= -\operatorname{tg} x = \operatorname{tg}(2\pi - x) // \end{aligned}$$

$$\begin{aligned} 50) \operatorname{Sin}\left(\frac{\pi}{2} + x\right) \operatorname{Cos}(\pi - x) \operatorname{ctg}\left(\frac{3\pi}{2} + x\right) &= \\ &= \operatorname{Sin}\left(\frac{\pi}{2} - x\right) \operatorname{Sin}\left(\frac{3\pi}{2} - x\right) \operatorname{ctg}\left(\frac{\pi}{2} + x\right) \end{aligned}$$

left-hand side :

$$\begin{cases} \operatorname{Sin}\left(\frac{\pi}{2} + x\right) \operatorname{Cos}(\pi - x) \operatorname{ctg}\left(\frac{3\pi}{2} + x\right) = \\ = \operatorname{Cos} x \cdot (-\operatorname{Cos} x) \cdot (-\operatorname{tg} x) \\ = \operatorname{Cos}^2 x \operatorname{tg} x = \operatorname{Cos} x \operatorname{Sin} x \end{cases}$$

right-hand side

$$\begin{cases} \operatorname{Sin}\left(\frac{\pi}{2} - x\right) \operatorname{Sin}\left(\frac{3\pi}{2} - x\right) \operatorname{ctg}\left(\frac{\pi}{2} + x\right) = \\ = \operatorname{Cos} x \cdot (-\operatorname{Cos} x) \cdot (-\operatorname{tg} x) \\ = \operatorname{Cos}^2 x \operatorname{tg} x = \operatorname{Cos} x \operatorname{Sin} x \end{cases}$$

$$\therefore // \operatorname{Sin}\left(\frac{\pi}{2} + x\right) \operatorname{Cos}(\pi - x) \operatorname{ctg}\left(\frac{3\pi}{2} + x\right) =$$

$$= \operatorname{Sin}\left(\frac{\pi}{2} - x\right) \operatorname{Sin}\left(\frac{3\pi}{2} - x\right) \operatorname{ctg}\left(\frac{\pi}{2} + x\right) //$$