

$$38) \operatorname{tg} x - \operatorname{ctg} x = (\operatorname{tg} x - 1)(\operatorname{ctg} x + 1)$$

$$\rightarrow \parallel (\operatorname{tg} x - 1)(\operatorname{ctg} x + 1) =$$

$$= \underbrace{\operatorname{tg} x \operatorname{ctg} x}_{1} + \operatorname{tg} x - \operatorname{ctg} x - 1$$

$$= \cancel{1} + \operatorname{tg} x - \operatorname{ctg} x - \cancel{1}$$

$$= \operatorname{tg} x - \operatorname{ctg} x \parallel$$

$$39) \cos x = \sin x \operatorname{tg}^2 x \operatorname{ctg}^3 x$$

$$\rightarrow \parallel \sin x \operatorname{tg}^2 x \operatorname{ctg}^3 x = \sin x \frac{\sin^2 x}{\cos^2 x} \frac{\cos^3 x}{\sin^3 x}$$

$$= \cos x \parallel$$

$$40) (\sin x + \cos x)(\operatorname{tg} x + \operatorname{ctg} x) = \sec x + \csc x$$

$$\rightarrow \parallel (\sin x + \cos x)(\operatorname{tg} x + \operatorname{ctg} x) =$$

$$= (\sin x + \cos x) \left(\frac{\sin x}{\cos x} + \frac{\cos x}{\sin x} \right)$$

$$= (\sin x + \cos x) \left(\frac{\sin^2 x + \cos^2 x}{\sin x \cos x} \right)$$

$$= \frac{\sin x + \cos x}{\sin x \cos x} = \frac{\sin x}{\sin x \cos x} + \frac{\cos x}{\sin x \cos x}$$

$$= \frac{1}{\cos x} + \frac{1}{\sin x}$$

$$= \sec x + \csc x \parallel$$