

44 46 47 48 49

$$41. \frac{1}{1+\cos x} - \frac{1}{1-\cos x} = -2 \cot x \csc x$$

$$(1+\cos x)(1-\cos x)$$

$$1 = \cos^2 x + \cos x - \cos^2 x$$

$$\frac{1}{1-\cos^2 x} - \frac{1}{1-\cos^2 x} \rightarrow \sin^2 x$$

$$-2 \frac{\cos x}{\sin^2 x} \times \frac{1}{\sin x} = -2 \cot x \csc x$$

$$46. \sec^2 x - \csc^2 x = \frac{\tan x - \cot x}{\sin x \cos x}$$

$$\frac{\sin x}{\cos x} - \frac{\cos x}{\sin x} \cdot \left( \frac{1}{\sin x \cos x} \right)$$

$$\frac{\sin x \cos x}{\sin^2 x} - \frac{\cos^2 x}{\cos x \sin x} \left( \frac{1}{\sin x \cos x} \right)$$

$$\frac{\sin^2 x - \cos^2 x}{\cos^2 x \sin^2 x} = \frac{1}{\cos^2 x} - \frac{1}{\sin^2 x}$$

$$47. \frac{1+\sin x}{\sqrt{1-\sin x}} = \frac{1+\sin x}{\cos x}$$

$$\frac{(1+\sin x)(1+\sin x)}{(1+\sin x)(1-\sin x)} \Rightarrow$$

$$\frac{1+2\sin x+\sin^2 x}{1-\sin^2 x} \Rightarrow \frac{1+2\sin x+\sin^2 x}{\cos^2 x}$$

$$\frac{1+2\sin x}{\cos x}$$

$$48. \cos x + \cot x \sin x = 2 \sin x$$

$$\cot x$$

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

$$\frac{2 \cos x}{\sin x} = 2 \sin x$$

$$49. \sin^3 x + \cos^3 x = 1 - \sin x \cos x$$

$$\frac{\sin x + \cos x}{(\sin x + \cos x)(\sin^2 x - \sin x \cos x + \cos^2 x)}$$

$$\frac{\sin^2 x + \cos^2 x - \sin x \cos x}{1}$$