

2.1
1

$$\tan x - \sin x = 3 \tan x \sin x$$

$$x \neq \frac{\pi}{2} + \pi k \quad \text{|| "}$$

$$\frac{\sin x}{\cos x} - \sin x = \frac{3 \sin x}{\cos x} \sin x$$

$$\sin x \left(\frac{1}{\cos x} - 1 - \frac{3 \sin x}{\cos x} \right) = 0$$

$$\downarrow$$
$$\boxed{x = \pi k}$$

$$\frac{1 - \cos x - 3 \sin x}{\cos x} = 0$$

$$2 \sin^2 \frac{x}{2} - 6 \sin \frac{x}{2} \cos \frac{x}{2} = 0$$

$$2 \sin \frac{x}{2} (\sin \frac{x}{2} - 3 \cos \frac{x}{2}) = 0$$

$$\sin \frac{x}{2} = 3 \cos \frac{x}{2} \quad /: \cos \frac{x}{2} \neq 0$$

$$\tan \frac{x}{2} = 3$$

$$\frac{x}{2} = \arctan 3 + \pi k$$

$$\leftarrow \begin{aligned} 1 - \cos x &= 2 \sin^2 \frac{x}{2} \\ 2 \sin \frac{x}{2} \cos \frac{x}{2} &= \sin x \end{aligned}$$

$$\frac{x}{2} = \pi k$$
$$\boxed{x = 2\pi k}$$

$$\boxed{x = 2 \arctan 3 + 2\pi k}$$

3

$$x = \pi k$$

||

$$x = 2 \arctan 3 + 2\pi k \quad \text{|| "}$$